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THE PLANT DISEASE REPORTER

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The Plant Disease Reporter is issued as a service to plant pathologists throughout the United States. It contains reports, summaries, observations, and comments submitted voluntarily by qualified observers. These reports often are in the form of suggestions, queries, and opinions, frequently purely tentative, offered for consideration or discussion rather than as matters of established fact. In accepting and publishing this material the Division of Mycology and Disease Survey serves merely as an informational clearing house. It does not assume responsibility for the subject matter.

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VEGETABLE SEED-TREATMENT TESTS IN WESTERN WASHINGTON, 1943

C. J. Gould[1]

Few materials have been adequately tested for their suitability as disinfestants and protectants on vegetable seeds in western Washington. A seed-treatment program was therefore initiated in 1942 and expanded in 1943 at the Western Washington Experiment Station to select the most suitable fungicides for the important vegetable seeds in this area and to determine what materials could best be substituted for the copper and mercury compounds if the latter became "War Casualties".

All of the seed treatment tests made in 1942 and some of those in 1943 were carried on in cooperation with the Vegetable Seed Treatment Committee of the American Phytopathological Society. Results of the other 1943 tests are reported here.

Twenty treatments were applied to seeds in each test, using several materials at one or more concentrations. The treated seeds were then planted, either on 2 different farms or in a greenhouse, in 5 replications of 100 seeds each. Planting procedures conformed as nearly as possible to commercial practices except for spacing within rows.

Arasan, Fermate, Spergon, and Ceresan were used in every test but one and at 3 concentrations. The high (1.5 or 2.0% by weight) concentrations were known to be unnecessarily strong for most seeds. They were used in an effort to determine the relative range of tolerance of the materials, with particular thought for the home gardener who is sometimes inclined to apply excessive dosages. Seeds were dusted with most of the materials but were dipped in solutions of a few of them. The compounds used as dips were: copper sulfate for 1 hour, calomel for 5 minutes, New Improved Ceresan for 5 minutes, and Semesan for 30 minutes (carrots, celery, and cucumbers) or 1 hour (lettuce, onion, and spinach). Thiosan was used instead of Arasan and Metrox instead of Red Cuprocide in the tests with cauliflower seed.

The active ingredients in each of the proprietary compounds are commonly known, with the possible exception of Dow DN-111 and Dow 6-B. Active components of these are 20% of the dicyclo-hexyl amine salt of dinitro-orthy-cyclo-hexyl phenol, and 65% of 2,4,5 trichloro phenol respectively.

Materials, dosages, and results are summarized in Table 1. The "F" value needed for significance in each case is 1.73 at the 5% level. Significant results were obtained in 25 of the 30 tests. Considerable increases in stand resulted from the treatment of certain seeds. For example, the average stands were increased from 20.0% in one lettuce check plot to 78.0% in a Spergon (1.5%) plot, and from 17.8% in one spinach check plot to 78.4% in the 2% Ceresan (1%) plot. The most consistently

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Table 1. - Results of vegetable seed-treatment trials in 1943 at Puyallup, Washington
Vegetable

Table 1. - Results of vegetable seed-treatment trials in 1943 at Puyallup, Washington

Vegetable	Cauliflower			Celery				Tomatoes			
Variety	Snowball			Utah Jumbo				Break O'Day			
Greenhouse test number	#1	#2		#1	#2			#1	#2		
"F" value[a]	35.17	4.85		1.06	0.84			6.36	10.6		
Least mean significant difference	6.15	7.4		----	----			10.8	12.5		
Dosage and stand	Dosage %	Average stand[b]	Average stand[b]	Grand Average	Dosage %	Average stand[b]	Average stand[b]	Grand Average	Dosage %	Average stand[b]	Average stand[b]	Grand Average
Material												
Check	----	76.0	71.2	73.6	----	49.6	62.0	55.8	----	43.8	16.2	30.0
Arasan[c]	0.25	82.0	89.6	85.8	0.25	52.8	52.8	52.8	0.5	58.2	53.4	55.8
"	0.75	86.6	89.6	88.1	0.75	46.0	54.0	50.0	1.0	62.4	58.8	60.8
"	1.5	85.4	87.8	86.6	1.5	50.4	55.6	53.0	2.0	72.2	52.6	62.4
Fermate	0.25	86.8	84.4	85.6	0.25	56.2	53.4	54.8	0.25	56.2	30.2	43.2
"	0.75	82.4	86.0	84.2	0.75	51.2	53.4	52.3	1.0	58.4	28.8	43.6
"	1.5	75.4	83.6	79.5	1.5	52.8	59.2	56.0	2.0	51.8	46.4	49.1
Spergon	0.25	86.4	84.8	85.6	0.25	36.2	54.4	45.3	0.5	58.4	51.0	54.7
"	0.75	85.6	84.8	85.2	0.75	49.0	50.6	49.8	1.0	50.2	42.0	46.1
"	1.5	85.8	85.0	85.4	1.5	40.2	60.0	50.1	2.0	61.2	46.2	53.7
Red Cuprocide[d]	1.0	78.2	68.0	73.1	2.0	51.2	59.8	55.5	2.0	43.6	17.8	30.7
Yellow Cuprocide	0.75	81.2	79.0	80.1	1.5	48.2	57.4	52.8	1.5	65.6	52.2	58.9
Cu Sulfate Soak									2.0	55.2	53.8	54.5
2% Ceresan	0.25	83.6	78.0	80.8	0.25	43.6	61.2	52.4	0.5	63.6	47.4	55.5
"	0.75	78.4	80.0	79.2	0.75	43.6	57.4	50.5	1.0	50.2	43.8	47.0
"	1.5	82.0	80.8	81.4	1.5	51.8	60.0	55.9	2.0	54.2	37.4	45.8
Semesan	0.4	85.2	85.8	85.5	0.2	44.0	66.2	55.1	0.4	38.2	15.6	26.9
Semesan Soak					0.25	25.4	61.6	43.5				
New Improved Ceresan Dip									0.1	67.4	51.6	59.5
Barbak C	2.0	82.4	78.2	80.3								
Calomel	Max.	84.4	86.6	85.5								
Calomel Dip					0.77	45.4	61.4	53.4				
AAZ Zinc Oxide	2.0	83.8	82.2	83.0	2.0	49.8	60.4	55.1	2.0	67.6	39.8	53.7
Dow DN-111									1.5	38.8	14.6	26.7
Phenothiazine	1.0	75.8	75.2	75.5	1.0	57.8	65.8	61.8				

a Value of 1.73 required at 5% level and 2.17 at 1%.
b Average of 5 replications.
c Thiosan used on Cauliflower and Arasan on others.
d Metrox used on Cauliflower and Red Cuprocide on others.

Table 1. - (cont'd.)

Vegetable	Radish				Lettuce				Onion			
Variety	Early Scarlet Globe				New York No. 12				Select Oregon Yellow Danvers			
Farm number		#1	#2			#1	#2			#1	#2	
"F" value		70.9	131.4			15.7	10.1			1.70	11.7	
Least mean significant difference		7.1	4.6			10.3	10.0			----	9.0	
Dosage and stand	Dosage %	Average stand[b]	Average stand	Grand Average	Dosage %	Average stand	Average stand	Grand Average	Dosage %	Average stand	Average stand	Grand Average
Material												
Check	----	66.0	83.8	74.9	----	20.0	37.6	28.8	----	42.0	65.8	53.9
Arasan	0.25	87.8	94.0	90.9	0.25	63.2	72.4	67.8	0.5	52.4	68.4	60.4
"	0.75	92.2	91.2	91.7	0.75	72.0	71.0	71.5	1.0	45.4	60.4	52.9
"	1.5	94.6	90.2	92.4	1.5	66.2	81.8	74.0	2.0	48.8	78.0	63.4
Fermate	0.25	92.0	93.6	92.8	0.25	60.8	68.2	64.5	0.5	65.0	78.6	66.8
"	0.75	82.2	92.2	87.2	0.75	49.0	64.0	56.5	1.0	43.2	70.2	56.7
"	1.5	91.8	90.4	91.1	1.5	55.2	69.4	62.3	2.0	42.4	70.8	56.6
Spergon	0.25	86.8	89.8	88.3	0.25	61.4	78.6	70.0	0.5	48.8	66.8	57.8
"	0.75	89.6	90.8	90.2	0.75	66.6	68.2	67.4	1.0	39.2	66.0	52.6
"	1.5	86.0	89.8	87.9	1.5	78.0	77.0	77.5	2.0	46.0	75.6	60.8
Red Cuprocide	1.0	65.4	85.2	75.3	2.0	75.8	78.2	77.0	1.0	44.0	64.4	54.2
Yellow Cuprocide	0.75	0.0	8.0	4.0	1.5	73.4	73.8	73.6	0.75	50.4	66.8	58.6
Cu Sulfate Soak					1.5	44.6	57.6	51.1				
2% Ceresan	0.25	92.2	92.0	92.1	0.25	70.2	71.0	70.6	0.5	39.4	72.1	55.8
"	0.75	90.6	92.6	91.6	0.75	62.2	65.2	63.7	1.0	42.2	70.8	56.5
"	1.5	91.4	90.8	91.1	1.5	67.2	62.6	64.9	2.0	46.6	66.2	56.4
Semesan	0.4	89.0	93.8	91.4	0.2	68.0	58.2	63.1	0.3	52.6	63.8	58.2
Semesan Soak					0.25	69.8	73.6	71.7	0.25	52.8	73.0	62.9
Barbak C	2.0	77.0	90.2	83.6								
Calomel	Max.	84.2	89.4	86.8								
Calomel Dip									1.0	44.2	73.4	58.8
AAZ Zinc Oxide	2.0	79.8	76.6	78.2	2.0	68.8	68.0	68.4	1.5	56.2	66.2	61.2
Dow DN-111									1.5	18.2	20.2	19.2
Phenothiazine	1.0	59.4	86.4	72.9	1.0	34.0	42.0	38.0				

Table 1. - (cont'd.)

Table 1. - (cont'd.)

Vegetable	Peas				Carrots				Corn			
Variety	Improved Telephone				Imperator				Golden Cross Bantam			
Farm number		#1	#2			#1	#2			#1	#2	
"F" value		9.9	11.9			3.1	1.0			1.84	8.9	
Least mean significant difference		10.3	8.0			9.5	---			14.7	6.6	
Dosage and stand	Dosage %	Average stand	Average stand	Grand Average	Dosage %	Average stand	Average stand	Grand Average	Dosage %	Average stand	Average stand	Grand Average
Material Check	---	51.6	64.4	58.0	---	37.4	34.0	35.7	---	56.0	73.8	64.9
Arasan	0.5	75.2	82.0	78.6	0.5	40.8	31.6	36.2	0.5	55.8	77.8	66.8
"	1.0	75.2	85.4	80.3	1.0	37.2	40.8	39.0	1.0	49.4	77.6	63.5
"	2.0	82.0	79.8	80.9	2.0	39.4	34.6	37.0	2.0	46.4	76.6	61.5
Fermate	0.5	73.4	75.4	74.4	0.5	33.0	35.2	34.1	0.5	61.0	80.2	70.6
"	1.0	68.4	83.0	75.7	1.0	32.8	36.6	34.7	1.0	62.0	77.6	69.8
"	2.0	72.4	78.6	75.5	2.0	35.6	36.4	36.0	2.0	53.0	76.4	64.7
Spergon	0.5	83.8	82.2	83.0	0.5	36.0	36.4	36.2	0.5	62.6	82.4	72.5
"	1.0	78.0	85.6	81.8	1.0	39.0	39.8	39.4	1.0	49.6	79.4	64.5
"	2.0	77.2	86.4	81.8	2.0	33.4	35.6	34.5	2.0	47.6	74.6	61.1
Red Cuprocide	0.25	66.8	75.4	71.1	1.5	37.8	31.2	34.5	0.25	46.2	72.2	59.2
Yellow Cuprocide	0.16	77.0	76.0	76.5	1.0	45.6	39.2	42.4	0.2	43.0	68.4	55.7
Cu Sulfate Soak					2.0	37.8	38.4	38.1				
2% Ceresan	0.5	75.4	82.4	78.9	0.5	32.8	41.8	37.3	0.5	45.6	78.0	61.8
"	1.0	77.8	86.2	82.0	1.0	28.8	33.6	31.2	1.0	51.8	76.6	64.2
"	2.0	87.0	88.0	87.5	2.0	28.6	37.0	32.8	2.0	43.6	73.2	58.4
Semesan	0.3	82.8	81.8	82.3	0.4	30.8	30.6	30.7	0.2	52.0	77.0	64.5
Semesan Soak					0.25	41.2	37.4	39.3				
New Improved Ceresan	0.2	73.0	75.0	74.0								
New Improved Semesan Jr.									0.3	41.6	61.4	51.5
Barbak C									0.3	44.2	78.4	61.3
AAZ Zinc Oxide	1.5	66.6	70.2	68.4	2.0	40.6	38.0	39.3	1.5	43.8	71.6	57.7
Dow DN-111	1.0	36.6	44.8	40.7	1.0	18.0	18.2	18.1	1.0	37.2	51.6	44.4
Dow 6-B	1.0	80.6	83.2	81.9								

Table 1. - (cont'd.)

Vegetable	Spinach				Swiss Chard				Beets			
Variety	Improved Thick-Leaf				Lucullus				Detroit Dark Red			
Farm number		#1	#2			#1	#2			#1	#2	
"F" value		17.8	11.4			16.9	13.3			13.4	34.0	
Least mean significant difference		14.7	9.3			19.4	12.5			20.8	17.9	
Dosage and stand	Dosage %	Average stand	Average stand	Grand Average	Dosage %	Average stand	Average stand	Grand Average	Dosage %	Average stand	Average stand	Grand Average
Material												
Check	----	17.8	13.6	15.7	----	20.8	9.2	15.0	----	76.0	74.0	75.0
Arasan	0.5	71.4	33.0	52.2	0.5	88.0	37.6	62.8	0.5	48.0	63.8	55.9
"	1.0	65.2	39.2	52.2	1.0	85.8	41.8	63.8	1.0	77.2	119.0	98.1
"	2.0	65.2	35.2	50.2	2.0	97.8	53.4	75.6	2.0	100.2	110.8	105.5
Fermate	0.5	36.6	24.2	30.4	0.5	64.6	34.4	49.5	0.5	61.0	108.8	84.9
"	1.0	53.0	33.0	43.0	1.0	81.0	40.4	60.7	1.0	83.4	107.6	95.5
"	2.0	61.2	37.2	49.2	2.0	83.4	26.2	54.8	2.0	93.0	116.4	104.7
Spergon	0.5	44.2	18.6	31.4	0.5	33.2	9.0	21.1	0.5	22.4	14.2	18.3
"	1.0	59.6	25.2	42.4	1.0	53.4	18.0	35.7	1.0	69.6	64.6	67.1
"	2.0	65.0	25.6	45.3	2.0	51.8	15.8	33.8	2.0	61.4	79.8	70.6
Red Cuprocide	2.0	23.8	11.6	17.7	1.0	46.8	21.2	34.0	2.0	73.8	73.6	73.7
Yellow Cuprocide	1.5	75.4	40.6	58.0	0.75	84.2	38.4	61.3	1.3	93.8	91.8	92.8
Cu Sulfate Soak	2.0	28.2	20.2	24.2	2.0	62.2	21.0	41.6	2.0	88.0	117.0	102.5
2% Ceresan	0.5	59.6	30.2	44.9	0.5	101.2	37.4	69.3	0.5	54.4	44.2	49.3
"	1.0	78.4	40.6	59.5	1.0	96.0	42.4	69.2	1.0	85.2	132.8	109.0
"	2.0	78.0	44.6	61.3	2.0	101.2	61.6	81.4	2.0	116.4	138.4	127.4
Semesan	0.3	34.8	27.4	31.1	0.4	74.6	26.4	50.5	1.25	95.8	116.2	106.0
Semesan Soak	0.25	65.8	31.0	48.4								
New Improved Ceresan					0.1	106.6	51.4	79.0				
AAZ Zinc Oxide	2.0	65.2	33.0	49.1	2.0	57.6	23.6	40.6	2.0	82.0	94.8	88.4
Dow DN-111	1.5	0.0	0.0	0.0	1.0	5.2	0.6	2.9	1.0	2.4	6.0	4.2
Dow 6-B									1.0	96.6	122.0	109.3

Table 1. - (concluded)

Table 1. - (concluded)

Vegetable	Snap Beans				Lima Beans				Cucumbers			
Variety	Blue Lake				Henderson Bush				Straight Eight			
Farm number		#1	#2			#1	#2			#1	#2	
"F" value		48.2	30.8			11.2	15.5			0.78	728.8	
Least mean significant difference		8.4	9.5			11.6	16.7			----	18.2	
Dosage and stand	Dosage %	Average stand	Average stand	Grand Average	Dosage %	Average stand	Average stand	Grand Average	Dosage %	Average stand	Average stand	Grand Average
Material												
Check	----	88.4	75.6	82.0	----	27.6	23.2	25.4	----	4.6	19.2	11.9
Arasan	0.5	89.8	74.4	82.1	0.5	43.8	68.4	56.1	0.5	13.4	78.6	46.0
"	1.0	89.6	83.8	86.7	1.0	51.6	71.6	61.6	1.0	13.6	69.0	41.3
"	2.0	90.4	84.2	87.3	2.0	43.6	63.4	53.5	2.0	12.0	76.8	44.4
Fermate	0.5	85.0	72.8	78.9	0.5	44.6	63.6	54.1	0.5	12.2	75.8	44.0
"	1.0	89.4	77.2	83.3	1.0	50.8	69.0	59.9	1.0	8.6	74.0	41.3
"	2.0	88.8	80.2	84.5	2.0	46.0	78.0	62.0	2.0	13.8	75.2	44.5
Spergon	0.5	90.0	83.0	86.5	0.5	55.0	72.2	63.6	0.5	8.4	74.6	41.5
"	1.0	89.8	77.2	83.5	1.0	50.0	69.8	59.9	1.0	11.6	70.4	41.0
"	2.0	87.2	77.4	82.3	2.0	43.6	67.8	55.7	2.0	5.6	62.0	33.8
Red Cuprocide	0.25	85.6	73.6	79.6	0.5	38.4	37.8	38.1	0.25	9.2	66.8	38.0
Yellow Cuprocide	0.2	14.6	2.4	8.5	0.5	20.4	22.4	21.4	0.2	9.8	74.4	42.1
2% Ceresan	0.5	91.2	80.0	85.6	0.5	57.2	71.6	64.4	0.5	9.2	76.8	43.0
"	1.0	87.0	67.8	77.4	1.0	56.4	66.2	61.3	1.0	14.0	85.4	49.7
"	2.0	60.4	55.0	57.7	2.0	31.0	19.2	25.1	2.0	7.4	74.6	41.0
Semesan	0.2	92.0	81.2	86.6	0.1	44.2	48.8	46.5	0.3	9.8	75.6	42.7
Semesan Soak									0.25	9.8	74.4	42.1
New Improved Ceresan	0.2	84.0	75.6	79.8	0.1	44.2	54.8	49.5				
AAZ Zinc Oxide	1.5	83.0	63.0	73.0	1.5	34.4	36.0	35.2	1.5	4.4	70.2	37.3
Dow DN-111	1.0	54.4	46.4	50.4	0.3	2.0	0.4	1.2	0.3	7.8	19.6	13.7
Dow 6-B	1.0	38.4	60.4	49.4	0.5	51.8	85.8	68.8	0.5	15.4	74.0	44.7

Table 2. - Summary of seed-treatment tests showing the four most effective[a] materials for each crop[b].

CROP	MATERIAL															
	Arasan	Fermate	Spergon	Red Cuprocide	Yellow Cuprocide	Copper Sulfate	AAZ Zinc Oxide	2% Ceresan	Semesan	New Improved Ceresan	New Improved Semesan Jr.	Barbak C	Calomel	Dow DN-111	Phenothiazine	Dow 6-B
Corn	+[c]	+	+	-	-		-	-	+		-	-		-		
Onions	+	+	-	-	-		+	-	+				-	-		
Beets	+	-	-	-	-	-	-	+	+					-		+
Spinach	+	-	-	-	+	-	+	+	-					-		
Swiss chard	+	-	-	-	+	-	-	+	-	+				-		
Cauliflower	+	-	+	-	-		-	-	+			-	+		-	
Radish	+	+	-	-	-		-	+	+			-	-		-	
Lima beans	-	+	+	-	-		-	+	-	-				-		+
Snap beans	+	-	+	-	-		-	+	+	-				-		-
Peas	-	-	+	-	-		-	+	+	-				-		+
Carrots	-	-	+	-	+	-	+	-	+					-		
Celery	-	+	-	-	-		-	+	-				-		+	
Tomatoes	+	-	-	-	+	-	-	+		+				-		
Cucumbers	+	+	-	-	-		-	+	-					-		+
Lettuce	+	-	+	+	+	-	-	-	-						-	

a Without regard for the least mean difference.

b With the exception of celery for which only three materials were superior to the check.

c Plus signs indicate the most effective compounds whereas minus signs indicate the other compounds tested.

effective materials were Arasan, Spergon, 2% Ceresan, and Semesan. Fermate was promising in several trials but did not appear to be superior as a general seed protectant to Arasan, which is closely related chemically to Fermate but seems to be better suited to a wider range of crops. The material Dow DN-111 was toxic to most seeds at the concentrations used (0.3 to 1.5%). Dow 6-B, on the other hand, gave very good results in the few cases in which it was tried. A summary of the 4 most effective materials for each crop is presented in Table 2. An analysis of the results indicates, among other things, that Arasan and 2% Ceresan were consistently effective as seed treatments on the chenopodiaceous crops (beet, spinach, and swiss chard), and Spergon and 2% Ceresan on the legumes (pea, snap bean, and lima bean).

The differences between the high, medium, and low concentrations of Arasan, Fermate, Spergon, and 2% Ceresan were statistically significant in several trials. In practically every instance, the best concentrations for small seeds (carrot, onion, tomato, spinach, beet, swiss chard, cauliflower, radish, celery, lettuce, and cucumber) in these trials were either the high (1.5 or 2%) or medium (0.75 or 1.0%) concentrations. On large seeds (pea, lima bean, snap bean, and corn) the data show few significant differences between the various dosages with the exception of 2% Ceresan which was toxic to most of the larger seeds (especially snap beans) when used at a concentration of 2.0% but not at 1.0 and 0.5% concentrations. The other materials (Arasan, Fermate, and Spergon) appeared safe for all seeds at all concentrations tested.

WASHINGTON AGRICULTURAL EXPERIMENT STATION

YEAST SPOT DISEASE OF SOYBEAN REPORTED FROM OKLAHOMA AND NORTH CAROLINA

YEAST SPOT OF SOYBEANS AND MUNGBEANS CAUSED BY NEMATOSPORA CORYLI PEGLION IN OKLAHOMA: Investigations of soybeans in the Experiment Station plots at Stillwater, Oklahoma have shown the presence of a serious undescribed disease of the seeds of both oil and edible varieties, which is caused by a member of the Saccharomycetales. The disease was present in all of the 25 varieties of oil beans in the plots at Stillwater. In addition, several varieties of edible soybeans were similarly affected, and no resistant varieties were found.

Apparently this organism attacks only the seeds, without affecting the pods. The disease symptoms on the seeds are light cream-colored, sunken spots. The seed coat remains intact, but the affected area of the cotyledons becomes very white in color and has a noticeable cheesy or mealy texture. In more advanced cases the seeds never mature, but remain small in size and are badly shrivelled.

The organism isolated from the cream-colored, sunken spots on the seeds was a species of Nematospora. Nematospora phaseoli Wingard has been reported previously as causing a yeast spot on lima beans and cowpeas. More recent investigators have reduced this species to synonomy with N. coryli Peglion. The morphological characters of our soybean isolate agree with those of N. coryli Peglion.

Soybean seeds distributed by the U. S. Department of Agriculture for regional variety tests from 1940 to 1943 showed lesions very similar to those caused by Nematospora coryli in Oklahoma. Isolations are being made to determine whether the same organism is involved in both cases, and if this proves to be the case it would suggest that the disease may be widely distributed in the United States.

Since the foregoing report was written, the fungus has also been isolated from mungbeans (Phaseolus aureus). Insofar as we can determine, this is the first report of the yeast spot disease on mungbeans. --D. A. Preston and W. W. Ray, Emergency Plant Disease Prevention Project, Stillwater, Oklahoma.

OCCURRENCE OF YEAST SPOT ON SOYBEAN IN NORTH CAROLINA: While examining soybean pods in August, September, and October of the present year (1943) a considerable number of developing seeds were found with discolorations of greater or less prominence. Direct microscopic examination of the discolored tissue of many of the seeds revealed the presence of ascospores of a yeast-like fungus. Dilution plate cultures from the discolored tissue yielded great numbers of colonies that soon produced ascospores like those seen in the macerated tissues of the diseased seeds. This yeast-like fungus belongs in the genus Nematospora and probably is the species, Nematospora phaseoli, described by Wingard in 1922 as occurring on lima bean and cowpea [N. coryli]. On the developing green soybean seeds the infected tissue varies in appearance from a scarcely noticeable yellowish discoloration in slightly depressed areas to very obvious brown discoloration covering as much as one-fourth the side of the seed. In the more lightly infected seeds there may be little or no necrosis of the cotyledonary tissue, the fungus developing as a colony between the surface of the cotyledon and the seed coat. In other seeds a considerable volume of necrotic cells has been observed, extending in some seeds all the way through the cotyledon.

The pods within which the diseased seeds are found may show external small discolored areas adjacent to the diseased seed. Infected seeds have been found, however, in green pods which showed no external evidence of infection. Certain shield shaped bugs resembling the green soldier bug were found in small numbers. It is thought these bugs may have served as inoculating agents, inserting Nematospora in their feeding operations.

This yeast spot has been found at several locations in this State and on seeds of a number of varieties. The writer's observations indicate that 0.5% of the seeds may be infected in some fields.

In September 1928, the writer found at Raleigh a few green soybean pods with tiny external wounds that had apparently healed. The seeds within showed similar wounds. A Nematospora was isolated from these seeds. Since few infected seeds were found and inoculation experiments made with pure cultures of the Nematospora isolated failed to indicate more than slight parasitism, no report of the finding of this Nematospora on soybean was made at that time. --S. G. Lehman, University of North Carolina.

REPORTS ON DISEASES OF SOYBEANS

SOYBEAN DOWNY MILDEW IN PENNSYLVANIA: Near the town of Amity in Washington County, one field of late soybeans was visited. The plants in this field had suffered little from frost and most of their leaflets were green. Examination of the field revealed a bare trace of downy mildew (Peronospora manshurica) on about 5% of the plants. --Leon J. Tyler, Emergency Plant Disease Prevention Project.

SOYBEAN DISEASES IN THE CAROLINAS: This report includes surveys during the period September 27 to October 4 in the mountain area of North Carolina around Asheville, the Pee Dee Experiment Station, Coker Seed Company test farm and other fields in the vicinity of Florence around St. Matthews in Calhoun County, and in Aiken and Edgefield Counties, South Carolina.

In South Carolina I was accompanied by Dr. G. M. Armstrong. We found the soybean crop the poorest in many years; some growers stated that those growing soybeans for oil might average as little as 5 bushels per acre.

Downy mildew (Peronospora manshurica) was reported September 25 from the northeastern coast of North Carolina, where the crop was very late. It was found October 1 in the Asheville, North Carolina area, and this week at Florence, St. Matthews, and Aiken, South Carolina. The soybeans in these areas are so close to maturity that very little, if any, damage from this disease is anticipated.

The bacterial blight and bacterial pustule complex (Pseudomonas glycinea and Xanthomonas phaseoli var. sojense) was the most prevalent of all diseases and was found in every area visited. It was very light in Aiken County, the only area where there was considerable frog-eye leaf-spot. In the eastern part of the State, although the bacterial leaf disease appeared to be very severe, growers were attributing defoliation to drought and did not believe the leaf spot contributed greatly to the poor crop. There were obvious differences between the amount of leaf spotting in different varieties in the 4 regional variety trials visited. It was too late, however, to take complete notes on all varieties.

Mosaic (virus). A grower living near McBee, South Carolina has contracted with a government agency to grow 350 acres of the Seminole variety of seed. The poor growing conditions (drought, etc.) has reduced the expected yield to a fraction of last year's production. Leaf hoppers have been abundant and the plants have been damaged by the feeding of this insect. In his contracted fields 10% of the plants have mosaic, although only about 1% in a severe form (apparently seed-borne or seedling infection).

In a field of 3 acres, planted with selected seed, fully 80% of the plants had mosaic. The central part of this field borders on a corn field with cowpeas planted between the corn rows. The cowpeas are uniformly infected with mosaic. This central area within a definite radius of the corn field has probably 50% of the severe type of mosaic. This appears to be due to a rather rapid spread of the mosaic from the corn field throughout the soybean field.

Southern sclerotial blight (Sclerotium rolfsii) was found in almost every field examined, but was associated with important reduction in stand in only one field in which most plants were injured by the lesser corn stalk borer. Twenty percent of the plants were dead in this field and many of them, in addition to the insect damage, showed strands and sclerotia of the southern blight fungus.

In one field of the Volstate variety in Calhoun County row counts of plants were made and 13, 12, and 11 plants out of 100 were dead. Most of this killing was due to S. rolfsii. In this field, because of a heavy stand, the yield was not visibly affected by the death of over 10% of the plants.

At the Coker Seed Company property near Hartsville, South Carolina, the variety Rokusun had 25% of the pods blasted (unfilled) by anthracnose (Glomerella glycines) and fully 50% of the pods were infected. This was the only observation of this fungus in all the fields visited.

Although only a few spots caused by frog-eye (Cercospora sojina) could be found with careful searching in the other areas, it was very abundant in the Aiken County area. It did not appear to be doing much damage to the fields but there were spots on every leaflet. The most common soybean in this section is the Otootan variety.

An unidentified brown circular leafspot was observed only at the Pee Dee Station. It was limited there to the Nanda, Wood's Yellow, Burnette, Tokyo, Wannamaker, Delsta, and Leminole varieties. Microscopic examination showed the presence on some of the older spots of long brown conidiophores and long brown spores characteristic of the genus Helminthosporium. On Nanda, Wood's Yellow, and Burnette the lower leaves were covered with spots. Other varieties were slightly affected.

Charcoal rot (Sclerotium bataticola) was observed on dead plants in many fields. It was of negligible importance. Dead and dying plants with discolored xylem were found in 2 fields. This trouble was tentatively identified as Fusarium wilt and specimens were taken for culturing. —R. E. Atkinson, Emergency Plant Disease Prevention Project.

BACTERIAL BLIGHT OF SOYBEAN IN TEXAS: Bacterial blight (Pseudomonas glycinea) caused negligible damage in a small planting at Ysleta, El Paso County. —G. M. Watkins, Emergency Plant Disease Prevention Project. Summary for October.

SOYBEAN DISEASES IN OKLAHOMA: Between 3000 and 3500 acres were observed during the period from October 18 to 23.

There is a considerable variation of opinion as to whether or not it is profitable to grow soybeans in this region. Some persons believe that soybeans cannot be grown successfully in this State because of adverse weather conditions. Pathologists are of the opinion that the number and virulence of the organisms attacking soybean are a major factor in the failure of soybean plantings.

During this survey an attempt was made to determine the diseases present as well as the extent of their occurrence, in soybean-growing regions of the State.

Bacterial pustule and bacterial blight were observed in all plantings surveyed. In 2 plantings a moderate amount of defoliation resulted. Pod and stem infections were observed in most plantings. Affected fields were seen near Stillwater, Fort Gibson, Muskogee, Jay, Vinita, and Afton.

Early plantings of soybeans at Stillwater, Jay, Muskogee, and Vinita showed infection by Macrophomina phaseoli (Sclerotium bataticola), loss in no case being greater than 1%.

Fusarium-wilted plants (Fusarium bulbigenum var. tracheiphilum) were observed at Stillwater and Fort Gibson. Loss was negligible although affected plants were easily located.

Cercospora [sojina] infections were sparse in Oklahoma this year. Only a few plants were found with typical Cercospora spots in plantings near Stillwater and Jay.

Soybean anthracnose (Glomerella glycines) was observed at Stillwater where it was causing considerable damage to nursery plantings. Of the many varieties affected, Ralsoy was most severely attacked.

Pod and stem blight (Diaporthe sojae) was apparent in plantings at Fort Gibson, Afton, and Stillwater, nearly 2% loss being estimated at Fort Gibson and Stillwater. Plants in many other plantings exhibited characteristic symptoms but the fungus has not produced fruiting bodies up to the present time.

Nematospora coryli [see above, page 601].

Mosaic-affected soybean plants were found in most plantings. In nursery plantings at Stillwater a large number of the plants of several varieties were infected.

It has not been possible to survey soybeans in Oklahoma as thoroughly as the crop and its diseases justify, and a more extensive survey would undoubtedly reveal the presence of other diseases. However, it is evident even from the limited observations that diseases consitute a major factor in the difficulties of growing the crop in Oklahoma. --Howard W. Larsh, Emergency Plant Disease Prevention Project.

SOYBEAN DISEASES IN ARKANSAS: Bacterial blight and pustule diseases were observed in all of the plantings surveyed, causing only slight defoliation in most cases. Pod and stem infections were apparent in most of the plantings.

Soybean wilt [presumably Fusarium bulbigenum var. tracheiphilum] was noticeable in several plantings, especially in the vicinities of Ulm, Roe, Stuttgart, and Brinkley. Loss was negligible but it was not difficult to find wilted plants in every field in these localities.

Mosaic (virus) was found in fields at Brinkley, Forrest City, Clarendon, Newport, Stuttgart, and DeWitt. Loss was negligible. --Howard W. Larsh, Emergency Plant Disease Prevention Project.

SOYBEAN DISEASES IN KANSAS: Thirty-two fields of soybeans were examined from October 26 to 29, in central and eastern counties along a route from Manhattan south to the vicinity of Eldorado, east to Chanute and neighboring counties, and north to Lawrence. Practically all fields

were mature and about half of them had been harvested. Charcoal rot was found in 13 out of 14 counties in 18 out of 32 fields, ranging in amounts from a trace to 100%. The 14 fields where this disease was absent were practically all late-planted small plants. In the variety test plots examined in Butler, Neosho, and Linn Counties, charcoal rot seemed to be most abundant in the early varieties. This disease seemed especially abundant where the crop had been harvested for some time. Anthracnose was found in 2 fields in Jefferson County. Pod and stem blight is present in about 1/3 of the fields in small amounts. The disease resulting in small black sunken spots on stems and pods, noted in earlier reports, is widely distributed. The cause of this disease has not yet been determined. Many fungi are now growing on the dead stems.

In connection with soybean diseases the following note from Dr. E. D. Hansing, Kansas State College, is of interest:

"The incidence of charcoal rot in 8 varieties of edible soybeans grown at the horticulture farm, Manhattan, varied from 2 to 87% infected plants at harvest. The incidence of charcoal rot in 12 varieties of field soybeans grown at the agronomy farm, Manhattan, varied from 1 to 81% infected plants (notes taken from 2 to several days after harvest). The highest percentage of infection was found in the early varieties. Very heavy infection of anthracnose was observed in a garden plot of edible soybeans in Manhattan. Slight to moderate infection of anthracnose was observed in soybean varieties at the agronomy and horticulture farms. This is the first report of these diseases on soybeans in Kansas." --Stuart M. Pady, Emergency Plant Disease Prevention Project.

SURVEYS FOR BACTERIAL WILT OF ALFALFA

BACTERIAL WILT OF ALFALFA IN PENNSYLVANIA: A disease survey was made during the week ending October 23 in the following Pennsylvania counties: Lycoming, Clinton, Centre, Huntingdon, Fulton, Somerset, Westmoreland, Fayette, Green, Washington, Allegheny, Butler, Lawrence, Mercer, Crawford, Erie, and Warren.

An attempt was made to ascertain in a general way the distribution and prevalence of bacterial wilt of alfalfa (caused by Corynebacterium insidiosum) in the above Pennsylvania counties which are representative of the western one-half of the State.

A total of 38 alfalfa fields (see attached table) were visited, distributed over 17 counties. Bacterial wilt was found in each of the 17 counties. Twenty-five of the 38 fields visited yielded plants that exhibited definite symptoms of the disease.

The percentage stand remaining in fields in which bacterial wilt was found ranged from 25 to 85. Percentage of plants having wilt in the stands remaining ranged from 1 to 50. Since, in general, the stands were poor in fields where the disease was found, it is probable that the disease contributed greatly to the killing of many plants that were gone. It is recognized, of course, that other factors such as the heaving injury due to soil freezing and thawing, and other alfalfa diseases, also contributed to the death of many missing plants. However, it seems safe to assume that bacterial wilt played an important part in their destruction. --Leon J. Tyler, Emergency Plant Disease Prevention Project.

Distribution, prevalence, and severity of alfalfa bacterial wilt in Pennsylvania.

County and date visited	Locality	Number of fields visited	Approximate percentage of full stand at present	Approximate percentage of plants in present stand with bacterial wilt
Oct. 18				
Lycoming	Jersey Shore	1	60	10
Oct. 19				
Clinton	Lamar	1	50	10
Centre	Hublersburg	1	75	20
	Zion	1	80	25
Oct. 20				
Huntingdon	Alexandria	1	50	20
	Mt. Union	1	50	25
	Between Shirleysburg and Burnt Cabin	5 (1-2 yr. stands)	90-100	Wilt not found
Fulton	Knobville	1	25	50
	Bedford	1	85	5
	Between McConnellsburg & Bedford	(1-3 yr. stands)	90-100	Wilt not found
Somerset	Boswell	3	85-100	Wilt not found
	Stoystown	2	85-100	5 (in one of 2 fields
Westmoreland	Youngstown	1	75	15
Oct. 21				
Fayette	Dawson	1	50	25
	Brownsville (6 mi. east)	1	25	50
Greene	Jefferson	1	75	5
	Near Washington Co. line	1	50	15
Washington	Amity	1	25	50
	Washington (3 mi. east)	1	50	5
Allegheny	Bakerstown	1	50	10
Oct. 22				
Butler	Between Prospect and Portersville	1	50	50
	Portersville	1	75	5
Lawrence	Harlansburg	1	50	15
Mercer	Leesburg	1	25	5
	Fairview	1	50	10
Crawford	Saegerstown	1	25	5
Erie	Mill Village	1	25	10
Warren	Freehold	1	65	1

ALFALFA BACTERIAL WILT SURVEY IN OHIO: During the period from October 11 to 16, a survey of alfalfa fields for the presence of the bacterial wilt organism was started. Observations were made in Champaign, Clark, Delaware, Franklin, Greene, Logan, Madison, Marion, Miami, Montgomery, Morrow, Pickaway, and Union Counties. In these counties alfalfa is commonly grown as a hay crop and is not pastured except by hogs. The young shoots are from 3 to 9 inches long and have grown up after the last cutting of the present year.

Symptoms of bacterial wilt are not outstanding because of the slow growth during a period of rather dry weather. The leaves are frequently stunted and the shoots shorter than normal. Only in severely infected fields were plants found showing a typical killing of the leaf edge and wilting. The internal symptoms showing a browning of the wood with brown stained areas on the inner surface of the bark were quite typical. The presence of the disease was based on the root symptoms and not on the appearance of the tops.

A total of 33 fields with an estimated total of 444 acres were inspected. Ages of the stand and densities were also estimated. The average age is 3.4 years and the average density is 62.7%. One field showed extensive disease symptoms that were appearing in the tops. The stand was being killed out. Eight fields showed between 5 and 10% of the plants infected, 16 fields showed traces of the disease, and 8 were free of any detectable traces of the disease. As a general observation it appears that bacterial wilt is the limiting factor in growing a stand of alfalfa in Ohio for more than 4 years.

The alfalfa wilt disease survey was continued during October 18 to 23 when observations were made in Belmont, Coshocton, Guernsey, Harrison, Knox, Muskingum, Stark, and Tuscarawas Counties. In these counties, with the exception of Belmont, alfalfa is not a major crop and does not grow in stands as dense as those in the western part of the State where the soil is less acid.

Bacterial symptoms in most fields are not difficult to see. In a few fields that had not been cut recently wilted plants could be seen at a distance of several yards. All top symptoms were checked by a root examination.

A total of 22 fields with an estimated stand of 235 acres were inspected. The average of the stands was 3.3 years and the average density was 60.4%, or somewhat lower than that for more western portions of the State. Two fields were found where the disease was severe, killing at least 10% of the plants. Two fields showed damage of between 5 and 10% of the stand. Ten fields showed traces of the disease while in 8 of the fields observed no trace of the disease could be found. --M. R. Harris, Emergency Plant Disease Prevention Project.

OTHER REPORTS ON ALFALFA DISEASES

ALFALFA DISEASES IN TEXAS: Root rot (Phymatotrichum omnivorum) killed up to 5% of the plants in fields observed in the Madera Valley District, Reeves County. Rust (Uromyces striatus) and leaf spot (Pseudopeziza

medicaginis) occurred as traces in all fields examined in El Paso, Reeves, Ward, Crane, and Pecos Counties. Girdle (said to be caused by insects) was found on about 5% of the plants in 3 fields near Grandfalls, Ward County. --G. M. Watkins, Emergency Plant Disease Prevention Project. Summary for October.

ALFALFA DISEASES IN UTAH: From October 20 to 23 a trip was made into Washington County in the extreme southwestern part of the State. Six plantings of alfalfa were examined. Leaf spot (Pseudopeziza medicaginis) was generally present. In most cases 100% of the plants were affected and from 25 to 100% of the foliage of affected plants was spotted. Bacterial wilt (Corynebacterium insidiosum) was present in from 1 to 2% of the plants in 3 of the 6 fields. Dodder (Cuscuta sp.) was found parasitizing the plants of 2 fields, affecting an occasional plant in one field and 1% of the plants in the other. Mosaic (virus) was observed in 3 fields, affecting an occasional plant in 1 field and 1% and 50% in the other 2. --Seth Barton Locke, Emergency Plant Disease Prevention Project

REPORTS ON DISEASES OF PEANUTS

PEANUT DISEASES IN SOUTHEASTERN VIRGINIA: This report covers a survey conducted from October 11 to 23 in southeastern Virginia in company with S. A. Wingard of the Virginia Experiment Station.

Most of the peanuts had been dug. Unharvested fields consisted of crops that had been planted late and the nuts were still immature. An unusually large number of pods had rotted in the ground. E. T. Batten, Superintendent of the Holland Station, estimated a loss of around 30% for the section, with a range of from 5 to 50% of nuts of maturity suitable for harvest. Samples were collected from a number of fields for later examination. Preliminary examination indicated that Sclerotium rolfsii was responsible for most of the rotting since typical sclerotia were found in many of the pods where the nuts were badly shriveled. Microscopical examination by Dr. Wingard revealed mycelium resembling that of Sclerotium rolfsii on the nuts in many pods. A low percentage of pods contained fruiting structures of Thielavia, Penicillium, Rhizopus, and other fungi. The conditions encountered in this area this season were somewhat similar to those described by Miller and Harvey (Phytopath. 22: 371-383, 1932), in that an early season of abundant rainfall was followed by hot dry weather. Pod rot was severe in many fields where only a few plants were killed in entirety, wilt being limited to one or two stems. However, in the fields examined, pod rot was much more severe on plants killed in entirety, or in part, by Sclerotium rolfsii, though prevalent in some fields where stem rot was only slightly evident.

Rotation appears to have had a marked effect on the incidence of pod rot. In limited counts at the Holland Experiment Station, peanuts following peanuts yielded 60% diseased nuts, while in adjacent rows following soybeans only 30% were rotted. In one field following corn and rye, and not recently planted to peanuts, very little rot was found. On the same farm, peanuts following soybeans, or other summer legumes, showed a high percentage of pod rot.

Experiments observed at the Holland Experiment Station showed striking increases in stand where machine-shelled nuts were treated before planting. Leafspot (Cercospora sp.) was prevalent, though reportedly less severe than in some preceding years. Many pods and nuts had been injured by larvae of the spotted cucumber beetle, this injury being more severe in areas of vigorous vine growth. This injury appeared to have been a point of entry for some rot organisms.

Weather reports show 26 clear days in August with high temperature prevailing. Little rain had fallen and the crop was being harvested under very favorable conditions. --C. F. Taylor, Emergency Plant Disease Prevention Project.

PEANUT LEAFSPOT IN FLORIDA: Large fields were examined at Orange Lake, Reddick, and south of Belleview in Marion County but the small-spored leaf spot (Cercospora personata) was the only disease noted. This was causing moderate defoliation in the first two fields and heavy defoliation in the field near Belleview. Here the leaf spots were unusually small and lesions on the stems unusually numerous and extensive. --Arthur S. Rhoads, Emergency Plant Disease Prevention Project.

PEANUT DISEASES IN LOUISIANA: During the week ending October 16, peanut fields were examined in Ouachita, Lincoln, Jackson, Bienville, Claiborne, and Winn Parishes. The yield of nuts was considerably reduced by continued drought during the summer. Approximately 75% of the early-planted crop had been harvested. Cercospora leaf spot was general but infection was extremely light, only 5 fields being seen where spotting was moderate to heavy with slight defoliation of the lower leaves. Sclerotium rolfsii was found in most fields, mostly only in traces. Two fields were seen with 1 to 2% of the plants infected, only 2 to 4 branches being killed on most affected plants. Most of the nuts were black and rotting on most of the attacked plants examined, and many of the pegs were also rotted, leaving the nuts in the ground when the plants were pulled from the soil. --L. H. Person, Emergency Plant Disease Prevention Project

PEANUT DISEASES IN TEXAS: Southern blight (Sclerotium rolfsii) killed about 1% of the plants at the experiment station at Weslaco, Hildago County. Leaf spot (Cercospora personata) was fairly severe on late peanuts in several fields near Granbury, Hood County. --G. M. Watkins, Emergency Plant Disease Prevention Project. Summary for October.

PEANUT LEAF SPOT IN ARKANSAS: Cercospora leaf spot became more evident during the past month. Severe defoliation was observed in fields near Fort Smith, West Memphis, and Ozark. Sulfur dusting experiments carried out by Dr. V. H. Young showed that the disease could be controlled satisfactorily by dusting. Plants in the dusted plots were larger and the foliage a deeper green as compared with adjacent non-dusted plants. --Howard W. Larsh, Emergency Plant Disease Prevention Project.

REPORTS ON DISEASES OF OTHER LEGUMINOUS FORAGE AND COVER CROPS

BACTERIAL CANKER OF COWPEA IN TEXAS: On October 15 4 fields of cowpeas were visited near Boerne, Kendall County. In all fields about 95% of the plants were severely cankered at the crown in the manner described in the earlier report. The reporting of this condition is complicated by the fact that the lesser corn stalk borer is reported to occur throughout Texas and this insect attacks the main stalk of cowpea plants and destroys much tissue. Some further study will be necessary to determine whether or not the cankered condition, usually seen with no insects or frass present, is distinct from borer attacks. --G. M. Watkins, Emergency Plant Disease Prevention Project.

DISEASES OF COWPEA IN OKLAHOMA: Cercospora leaf spot was causing considerable defoliation in all of the plantings surveyed during the period from October 18 to 23. Macrophomina phaseoli was observed in most plantings; the amount of loss, however, was considerably less than reported heretofore in other regions of the State. In a 20-acre plot near Cleveland, a loss of nearly 5% of the plants could be attributed to this fungus.

Bacterial canker (undet.) was found in only a single planting surveyed this week, near Cleveland, where it was causing loss estimated at nearly 3%. --Howard W. Larsh, Emergency Plant Disease Prevention Project.

COWPEA DISEASES IN ARKANSAS: Cercospora (Cercospora sp.) leaf spot was causing severe defoliation in plantings at Stuttgart and DeWitt and was also prevalent in plantings at England, Brinkley, and Forrest City. Macrophomina phaseoli caused nearly 5% loss in a 40-acre planting at Stuttgart, and considerable loss was observed at Roe, Ulm, Hazen, and DeWitt. Bacterial canker (undet.) was observed on a few plants at Stuttgart and DeWitt. --Howard W. Larsh, Emergency Plant Disease Prevention Project.

LEAF SPOT OF GUAR (CYAMOPSIS PSORALOIDES) IN CALIFORNIA: One field of guar was seen growing in the Delta area southeast of Isleton. A leaf spot was found to be common on these plants but was causing little or no damage. There was perhaps a slightly earlier defoliation of the affected plants. A species of Macrosporium and a species of Alternaria were found on the older spots, and both fungi were isolated from the younger leaf spots. --Horace L. Barnett, Emergency Plant Disease Prevention Project

SURVEY FOR CORN DISEASES IN ILLINOIS

R. C. Baines and G. H. Boewe

During the week ending October 30 a survey of field corn diseases was made over a 125-mile wide belt extending east and west across central

Illinois. The surveyors worked separately for the most part, choosing routes so as to sample the area as completely as time permitted. They entered 38 fields and examined 100 or more plants in each field. Corn in the area was mature and in many cases was being harvested. In occasional fields the ears contained too much moisture for storing satisfactorily. Diplodia stalk rot (Diplodia zeae), ear or kernel rots caused by Fusarium moniliforme and Penicillium spp., and smut (Ustilago maydis) generally were found in the fields examined (see table below).

Diseases found on field corn in central Illinois, October 25 - 30, 1943.

Disease	Pathogen	Per cent of Plants infected			Per cent of fields infected
		Minimum	Maximum	Average	
Stalk rot	Diplodia zeae*	1	71	23	100
Ear rots	Diplodia zeae	0	5	0.6	46
	Fusarium moniliforme	2	40	12	100
	Penicillium spp.	0	25	6	87
	Gibberella zeae	0	3	0.5	38
	Nigrospora oryzae	0	1	0.2	19
	Aspergillus niger	0	4	0.2	8
	Rhizopus nigricans	0	5	0.3	11
Ear smut	Ustilago maydis	0	4	0.6	49
Stalk smut	Ustilago maydis	0	12	2.5	87
Black bundle	Cephalosporium, etc.	0	28	5	43
Charcoal rot	Sclerotium bataticola	0	2	T	3
Rust	Puccinia sorghi	0	100	3	5

*Severe infection only.

Diplodia stalk rot was found in all fields and ranged from 1 to 71% of the stalks infected severely. In most fields infected stalks had produced ears with well-matured grain. However, this grain appeared to be not quite so well filled as that on apparently healthy stalks. It is estimated that Diplodia reduced yield 4 to 5%.

Diplodia ear rot was found in 46% of the fields examined and on 0.6% of the ears.

Gibberella ear rot was found in 38% of the fields examined and on 0.5% of the ears.

Fusarium and Penicillium ear rots were fairly abundant. These rots usually followed ear worm injury and in most cases were limited to the tips of the ears. Fusarium ear rot occurred in 100% of the fields, Penicillium ear rot in 87%, affecting 12 and 6% of the ears, respectively. These molds reduced yield approximately 1%.

Nigrospora ear rot, difficult to detect at this time with, in most cases, only incipient rot present, was found in 19% of the fields and on 0.2% of the ears. It appeared most abundant in the area south of Champaign.

Aspergillus niger and Rhizopus nigricans ear rots were found in 8 and 11% of the fields and on 0.2 and 0.3% of the ears.

Smut was found in 87% of the fields, on 2.5% of the stalks, and on 0.6% of the ears. Loss in yield appeared about 1%.

Black bundle (Cephalosporium acremonium), or a somewhat similar diseased condition, was found in 43% of the fields. Affected plants usually were small, weak and barren, or formed only small or nubbin ears. In many cases the diseased condition appeared associated with poor soil water drainage, root rot, and chinch bug injury. This diseased condition was encountered most frequently in the southern part of the area surveyed.

Charcoal rot (Sclerotium bataticola) was found in one field in Montgomery County.

Rust (Puccinia sorghi) was found severely infecting leaves in 2 fields near Macomb; it apparently reduced yield only slightly.

EMERGENCY PLANT DISEASE PREVENTION PROJECT AND ILLINOIS NATURAL HISTORY SURVEY.

CORN DISEASE SURVEY IN IOWA AND MISSOURI

T. W. Bretz

On October 18, 19, and 20, a survey of corn stalk and ear rots was made in company with Dr. George Semeniuk of the Iowa Agricultural Experiment Station. The survey included the western half of the State of Iowa, including the territory along a route that extended from Ames to Atlantic, Cherokee, Spencer, Garner, and back to Ames, Iowa. On October 22 and 23 this survey was continued along a route extending from Ames east to Marengo, then south to Ottumwa, Iowa and Columbia, Missouri. The estimated percentages of stalk and ear rots was based on a count of 100 plants in each of the fields examined.

In Iowa, the percentage of dead stalks ranged from 7 to 62%, with an overall average of 30%. Diplodia zeae pycnidia were evident on the basal portions of a very high percentage of these dead stalks. In the field showing the highest percentage of dead stalks, 36% of the stalks were broken over. The percentage of all ear rots ranged from none to 25%, averaging 5.6% for the entire area. The range and averages for the specific ear rots follow: Gibberella zeae, none to 20%, average 2.6%; Diplodia zeae, none to 6%, average 1.6%; Fusarium moniliforme, none to 8%, average 0.9%; and Nigrospora oryzae, none to 3%, average 0.45%. In general, the prevalence of ear rots appeared to decrease somewhat in the most northwestern counties covered in this survey.

In Missouri in 5 northern counties, the percentage of dead stalks ranged from 22 to 58%, averaging 37%. On the basis of field examination of the basal portion of these stalks, it appeared that Diplodia zeae infection was present in practically all instances. The total percentage of ear rots ranged from 2 to 10%, averaging 5.4%. The range and average percentage of the different ear rots was as follows: Fusarium moniliforme, 1 to 8%, average 3%; Diplodia zeae, 0 to 4%, average 1.2%; Gibberella zeae, none to 1%, average 0.4%; and Nigrospora oryzae, none to 2%, average 0.6%.

During the week ending October 30, a corn stalk and ear rot survey was made along a route extending from Columbia, Missouri west to the vicinity of Kansas City, south to the region around Joplin and Springfield, then north to Sedalia and Marshall and counties in the north-central portion of the State, extending to the Iowa line.

So far as the prevalence of Diplodia stalk rot is concerned, the area covered in this survey can be fairly well divided into 2 regions. In Benton, Henry, and Bates Counties, and those counties situated to the south, from 4 to 20% of the stalks showed symptoms of Diplodia zeae infection, averaging 11%. In one field in Bates county, 4% of the stalks showed the presence of charcoal rot (Sclerotium bataticola). In the counties situated to the north, an average of 24% of the stalks showed evidence of Diplodia infection, ranging from 8 to 50%.

No striking differences were observed in the prevalence of the various ear rots. In the above defined southern area, Fusarium moniliforme ranged from 2 to 20%, average 8%; Diplodia zeae from none to 4%, average 1.2%; Gibberella zeae from none to 2%, average 0.7%; Nigrospora oryzae a trace. In the northern counties, Fusarium moniliforme ranged from 1 to 20%, average 6.5%; Diplodia zeae from none to 6%, average 1.1%; Gibberella zeae from none to 4%, average 0.9%; Nigrospora oryzae from none to 2%, average 0.2%. It was noted that much of the Fusarium infection followed corn ear worm damage.

The lower percentage of stalk rot in the southwestern portion of the State might be accounted for, perhaps, by the severe drought conditions there during July and August. In the northern counties the rainfall was fairly well distributed through the summer, although in some sections it was excessive in May and June.

EMERGENCY PLANT DISEASE PREVENTION PROJECT

OTHER REPORTS ON DISEASES OF CORN AND OTHER CEREAL CROPS

CORN SMUT IN TEXAS: A 5-acre patch of field corn near Pittsburg, Camp County, was still in active growth and showed smut galls (Ustilago maydis) on 50% of the ears. --G. M. Watkins, Emergency Plant Disease Prevention Project, week ending October 30.

CORN DISEASES IN OKLAHOMA: From 2000 to 3000 acres of corn were observed in Oklahoma during the week ending October 23. Smut (Ustilago maydis) was found in all plantings, infection ranging from 1 to 5% except in one field near Seiling where it was at least 15%.

Ear rots were found in most fields examined. Diplodia was causing nearly 1% loss in plantings near Jay, Vinita, Nowata, and Seiling, Fusarium ear rot was causing an equal amount in the same fields.

Lodging (Sclerotium bataticola) was quite evident in most fields, but the crop had been harvested in most of them and the amount of damage due to lodging was not estimated. In many fields in which harvesting had not begun, at least 5% of the plants were lodged. --Howard W. Larsh, Emergency Plant Disease Prevention Project.

DISEASES OF CORN IN CENTRAL AND EASTERN KANSAS: In a corn disease survey from October 26 to 29, 19 fields in 14 of the central and eastern counties of Kansas were examined along a route from Manhattan south to the vicinity of Eldorado, east to Chanute and neighboring counties, and north to Lawrence. Some of the fields were mature, while in others the plants were maturing with bases still green. Diplodia stalk rot (Diplodia zeae) was the most prevalent disease, being found in 15 fields in 13 counties on 458 plants, ranging from 2 to 80%, averaging 30%. The highest amounts appeared to be on upland soil where the fields were mostly mature. The least stalk rot was found in hybrid corn on bottom land. Charcoal rot (Sclerotium bataticola) was found on 324 plants in 14 fields and was observed in every county visited. Amounts ranged from 2 to 48%, depending upon maturity, and averaged 11%. Lodging was present in 158 plants in 14 fields, averaging 11%. Most of the lodging was associated with charcoal rot and Diplodia stalk rot, although many fields with high percentages of these diseases had little lodging. Smut (Ustilago maydis) was found in 13 fields in 12 counties on 44 plants, averaging 3%. --Stuart M. Pady, Emergency Plant Disease Prevention Project.

SMUT ON SWEET CORN IN WESTERN STATES: Seth Barton Locke reported smut as affecting 3% of the ears in one planting and 30% in another in Washington County in extreme southwestern Utah (visited October 20 to 23).

Horace L. Barnett reported heavy infection in one small field of about 2 acres in the Brentwood area of Contra Costa County in central California, (week ending October 16).

STEM ROT OF RICE IN LOUISIANA: Two outbreaks of stem rot caused by Leptosphaeria salvinii (Sclerotium oryzae) were reported near Oberlin on the Fortuna variety. Loss was estimated at 10 to 15% in one early-planted field of approximately 100 acres, and at 5% in a later-planted field. --L. H. Person, Emergency Plant Disease Prevention Project. Week ending October 23.

SORGHUM DISEASES IN OKLAHOMA: Between 6000 and 8000 acres of sorghum were observed during the week ending October 23.

Milo disease (Pythium arrhenomanes) was noted in plantings between Jay and Spavinaw, and one instance between Vinita and Nowata. No loss was greater than 1%.

Smut was observed to be causing considerable damage in plantings near Jay, Langley, Vinita, and Nowata. In most plantings a loss of nearly 2% could be attributed to covered smut (Sphacelotheca sorghi). In one planting west of Jay a loss of nearly 5% was observed. In plantings near Vinita and Woodward collections were made of a smut differing from either covered or loose smut (S. cruenta) and tentatively considered a hybrid. Only a few infected heads were found in each instance, therefore the loss was negligible.

In most instances lodging was found to be causing 1% or less damage in commercial plantings; however, in nursery plantings at Woodward, one

variety was nearly 8% lodged. Loss from lodging in commercial plantings near Jay, Vinita, and Nowata was not more than 1%.

Bacterial diseases remain the most widespread of all the diseases observed on sorghum in Oklahoma. None of the plantings examined were free from one or more of these diseases; however, in most instances, little loss could be attributed to these infections. --Howard W. Larsh, Emergency Plant Disease Prevention Project.

DISEASES ON VOLUNTEER WHEAT IN KANSAS: In one field of volunteer wheat in Shawnee County, leaf rust (Puccinia rubigo-vera var. tritici) was found in abundance. Speckled leaf blotch (Septoria tritici) was found on scattered plants. --Stuart M. Pady, Emergency Plant Disease Prevention Project. October 26 to 29.

REPORTS ON DISEASES OF COTTON

DISEASES OF SEA ISLAND COTTON IN FLORIDA: One large planting of the Experiment Station near Leesburg was examined at picking time but little evidence of disease was apparent. A trace of Diplodia boll rot (D. gossypina) was noted, and 2 recently dead plants showed the sclerotia of Sclerotium bataticola under the bark. --Arthur S. Rhoads, Emergency Plant Disease Prevention Project.

VERTICILLIUM WILT OF COTTON IN MISSISSIPPI: Verticillium wilt was collected on the Holly Springs Experiment Station plot. The fungus had previously been collected and isolated by Dr. J. R. Pinckard. --L. H. Person, Emergency Plant Disease Prevention Project. October 11 to 16.

COTTON DISEASES IN TEXAS: October 11 and 12 were spent in the El Paso Valley irrigated farm section. On cotton 2 diseases were generally distributed through the Valley and both were causing serious damage in most cases. The first of these, Verticillium wilt (V. albo-atrum), causes much stunting of growth and reduction of fruiting in most fields. In a few fields the yield was possibly reduced as much as 50% by the disease. The other generally distributed disease was a leaf spot caused by a Macrosporium, probably M. nigricantium. This fungus had seriously reduced the effective leaf surface and in addition was causing heavy defoliation in both short and long staple cotton.

Two other cotton diseases were of minor importance in the El Paso district at the time of my survey. One of these was rust (Puccinia schedonnardi) [P. stakmanii], of which a small amount was seen in one field near Fabens, El Paso County. Dr. S. E. Jones, Superintendent of the Texas Agricultural Experiment Station at Ysleta, El Paso County, stated, however, that true rust had been widespread and serious in El Paso County during August. He said that heavy defoliation had resulted in many cases and that the plants had put out almost completely new foliage. The other disease of minor importance was Phymatotrichum root rot (P. omnivorum),

which was identified in small spots in 2 fields near Fort Hancock, Hudspeth County.

In the Madera Valley district at Balmorhea, Reeves County, October 12, Phymatotrichum root rot was generally present in cotton fields but had caused small damage. Macrosporium leaf spot was present in all cotton fields seen, but was much less severe than in El Paso County.

On October 13 a trip was made through the Pecos River Valley irrigated districts in Loving, Ward, Crane, and Pecos Counties. Phymatotrichum omnivorum was seen on cotton in all these districts, but had caused insignificant loss. Likewise Verticillium wilt was located in many places but was not sufficiently abundant to cause appreciable damage. Macrosporium nigricantium leaf spot was seen in most cotton fields but was less damaging than in El Paso County. --G. M. Watkins, Emergency Plant Disease Prevention Project.

COTTON DISEASES IN ARKANSAS: Cercospora (Mycosphaerella gossypina) and Alternaria leaf spots were observed in nearly all of the fields surveyed. Damage varied from negligible to considerable defoliation in plantings near DeWitt and south of Little Rock.

Fusarium (F. vasinfectum) wilted plants were observed at DeWitt, St. Charles, Gillett, and in the Newport area. Loss was not more than 1% in most plantings; however more than 10% was estimated in some fields near DeWitt and Gillett.

Rootknot (Heterodera marioni) was causing some damage in the Newport region. Non-parasitic "rust" (potassium deficiency) was not at all uncommon in fields near DeWitt and Newport. --Howard W. Larsh, Emergency Plant Disease Prevention Project.

POTATO CONDITION IN FIELD AND STORAGE IN AROOSTOOK COUNTY, MAINE

R. C. Cassell

Saturday, October 23, completed the eighth consecutive day of rain in Aroostook County. The weather forecast is for continued rain, which further adds to the potato grower's uncertainties. Very few potatoes were dug this week. On two afternoons those farmers with horse-drawn diggers were able to work if pickers were available. Approximately 2/3 of the growers still have potatoes in the ground. Individual acreages yet to be dug range on the average from 5 or 6 acres up to 60 or 70. A grower in Limestone who had over 700 acres in potatoes, still has between 300 and 350 acres yet to dig. It is estimated that up to 10,000,000 bushels of Aroostook County's 75,000,000 bushel potato crop is still in the ground. This represents about 25,000 acres yet to be dug.

Some of the 10,000,000 bushels still in the ground will be dug, but just how much is uncertain. A hard freeze before the weather clears will strike almost 10,000,000 bushels off the records. If the weather clears favorably, digging will be resumed, the rate depending upon soil conditions, pickers, and availability of storage facilities. Storage

facility conditions have probably been alleviated to some extent this week while digging was practically at a standstill. The highway department completed approximately 30 ground pits of an average capacity of 2,000 barrels each. The Bangor and Aroostook Railroad probably moved in excess of 1 1/4 million barrels out of the County this week. However, pickers have also left in large numbers. Farmers will be left very largely dependent upon exchange help to finish the season.

The generally favorable year for potato production in Aroostook County coupled with an expanded acreage has produced more potatoes than available facilities were prepared to handle. Labor shortage has also delayed digging. In many instances farmers have been working on additional storages of one kind or another when they might otherwise be digging. Converted barns and other buildings are being filled with potatoes this year for the first time. In still other cases farmers have had to let their pickers go because central storage houses became filled and temporarily could not accept more potatoes and consequently the producer had to stop digging.

For the first time in the potato history of Maine the acreage of Katahdins has this year surpassed the acreage of Green Mountains.

Many factors will enter this year in reducing the "oversized" Maine potato crop before it reaches the consumer. I believe losses will be extraordinarily high. The following may be listed as important factors already taking a toll in the loss column:

Sunburn will account for heavy losses in potatoes other than seed stocks. Cobblers are almost free; Green Mountains are showing slight amounts; Chippewas, Sebagos and especially Katahdins are more seriously affected. Practically all lots of the latter three varieties show from a trace to 25% sunburn. Katahdins have been showing 10 to 25%.

Contributing factors to the unusual amount of sunburn this year are: (a) Soil was wet when the potatoes were planted and continued to be wet when the tubers set. As a result, it is the contention of some growers that the tubers set nearer the surface than usual. (b) Katahdins, Sebagos, and Chippewas have a tendency to set tubers nearer the surface than Green Mountains or Cobblers. (c) Because of the continued wet season, growers cultivated the soil wet rather than giving over to the weeds. Later, when the soil dried some, it had a tendency to crack and expose the developing tubers. (d) Heavy summer rains washed the already aggravated ridges, contributing to further tuber exposure. The same seasonal factors tending to produce an unusual amount of sunburn this year were also instrumental in furthering frost damage in the field and tuber infection of late blight.

Frost damage is showing from a trace to 5 and 10% in Sebagos, Chippewas, and Katahdins. Some growers are complaining of a rot at digging time, which is none other than frost damage.

Hollow heart is ever-present this year because there are so many "bulls". Not all large potatoes are hollow, but so many are that they are being discriminated against as a group with no practical available method of detecting the hollow ones.

Most lots of potatoes are showing traces to a slight amount of growth cracks.

Late blight (Phytophthora infestans) is already showing up in storage.

It is very often associated with sunburn, showing evidence of spore infection early in the season. Trace to slight amounts of late blight have been recorded in most cases; however, one case of 10% late blight was found in storage.

Ring rot (Corynebacterium sepedonicum) was found in 5 of 8 fields examined where digging was in progress. Rotted tubers ranged from a trace to about 8%. Ring rot was found in serious amounts in 2 storage houses. One was at a siding in Mapleton where about 5% of the tubers were affected and the other was a home storage in Caribou where the lot of Katahdins was being hand-picked to sort out the ring rot. Here affected tubers were running 25%.

Scab (Actinomyces scabies) varies considerably between fields as well as within fields. No severe cases have been found, but it is unusual not to find it to some extent.

Blackleg (Erwinia atroseptica) [E. phytophthora] is found to some extent at digging time. Rotting tubers range from trace to an occasional field of 1/2 to 1%.

No bad cases of Rhizoctonia (R. solani) were observed, but slight amounts on the surface of occasional tubers were noted.

Stem-end browning (cause unknown) can be found in at least 2/3 of lots examined. In most cases only a trace to a slight amount is present, but an occasional case of 1 or 2% has been found.

There seems to be a prevalent complaint of net necrosis (leaf-roll virus) in Green Mountains this year, but as yet I have not been able to personally verify it. I have found but 3 cases of net necrosis and only a trace in each case. Two of these were in Katahdins and one was in Green Mountains.

A trace of powdery scab (Spongospora subterranea) was reported at the Aroostook Experimental Farm, Presque Isle.

October 24 to 30 was another week of rather consistent rain in Aroostook County. Most growers who still have potatoes in the ground were able to get in 2 or 2 1/2 days of digging this week. It is estimated that there are still 14,000 to 15,000 acres of potatoes not yet dug, representing something slightly less than 5,000,000 bushels still in the ground.

The potatoes dug this week have been wet and muddy. In many cases these potatoes were stored on top of others in the bin and will undoubtedly aggravate storage losses. Where the potatoes were brought directly from the field to central storages, as much as 35% was graded out because of the muddy condition. Many growers also believe that the potatoes dug and stored this week will run about 50% loss because of frost damage.

Forty-five storage houses in Caribou, Carson Siding, Fort Fairfield, Limestone, Van Buren, Madawaska, Presque Isle, and Washburn were visited this week. Bins were inspected and a great many truck loads of potatoes were seen to go over the graders. Practically all storages show the effect of an oversized crop and overworked crews. Many bins are keeping in good shape; many bins are mediocre; and too many bins are keeping poorly or not at all. A large number of bins in the area have already been moved, graded and sacked to dry. There are others that should be, as losses are accumulating rapidly, but help is scarce and more potatoes are coming in all the time. Most bins have been filled beyond capacity and

air circulation is either poor or restricted. It has been cold and rainy, yet most houses have had no heat and the potatoes, instead of drying, have become sweaty, which has aggravated rots. Under prevailing conditions the partially frozen potatoes have developed soft rot rapidly.

This year many growers started to dig early, because of larger acreages, without first killing the tops. In these cases late blight rot has been the predominating factor. One large bin of certified Cobblers in Fort Fairfield was 95% rotted with late blight and all discarded. Another bin of certified Red Rose belonging to the same grower and subject to the same circumstances was an 80% loss. In Van Buren one producer suffered an $80,000 loss, according to his statements, from late blight rot and frost damage. This was a farm storage that, I should judge, would hold 20,000 barrels of potatoes and it was nearly full. About 25% of the tubers had late blight rot and about 5% more were frost-damaged. He was hauling out the entire lot and selling it immediately where he could and for what he could get.

Judging from my own observations and taking into account the opinion of the many potato producers and buyers, I am necessarily forced to the conclusion that the "over all" loss of the Aroostook County potato crop of this year will be in the neighborhood of 30 to 35%. Some people estimate it at 25%, others at 50%, but the majority agree that it will be at least a third of the crop. The alarming thing is that where bins are breaking down it is usually due to two or more contributing factors; or if there is one primary cause in one instance, there is likely to be another primary cause in the next instance, and so on.

Where bins of potatoes are rotting the cause is usually one, or some combination, of the following reasons. No attempt is made here to attach special significance to any one cause, as that depends entirely upon the given instance. (1) Overcrowding of bins, causing poor ventilation and sweating. (2) The storage of muddy or damp potatoes. (3) Late blight. (4) Frost damage. (5) Ring rot. (6) Blackleg.

Through this whole maze of storage rot confusion there seemed to be at least one line of demarcation. If the bins were stored early, the trouble is likely to be late blight; if storage was made after the first week of October, it is likely to be frost damage interspersed in this latter case with late blight and in both cases to some extent with ring rot. The storage of wet, dirty potatoes has also come about within the last two weeks.

Following is a detailed report of the results of potato storage inspection based on 45 lots of potatoes:

Sunburn: 78% had at least some sunburn. The affected lots ranged from a trace of sunburn to 75%. The majority had only a trace or a slight amount, but quite a number contained 15 to 30% affected potatoes. The majority of Katahdins and Sebagos had around 30% sunburn.

Frost damage: 53% showed frost damage to some degree. Within the affected lots the range was from a trace to 20% damage. Three lots had about 20%. About one-half of affected lots had from a trace to 5% damaged tubers.

Late blight (Phytophthora infestans): 60% had late blight. 45% of the affected lots had from a trace to 5% infection. One lot was 25% infected, one 80%, and one 95%.

Ring rot (Corynebacterium sepedonicum): 45% had ring rot. One-half of the affected lots had only a trace. The worst single case was a 25% infection.

Stem-end browning (unknown): 50% had stem-end browning. Usually where it was found there was only a trace; however, one lot of Katahdins had 2% and one lot of Green Mountains 5%.

Net necrosis (leaf-roll virus): In only 6 of the 45 lots was net necrosis found. Four cases were in Green Mountains, one in Katahdins and one in Earlaines. In no case was there over a trace of net necrosis present.

Blackleg-Rhizoctonia complex stem-end browning. This occurred in 50% of the lots but only in traces to slight amounts.

Blackleg: 10% had probable blackleg. Except in one bin where there was 5% blackleg, its occurrence was in general very slight.

Hollow heart, growth cracks, and Rhizoctonia solani occurred in 30 to 35% of the lots. Actinomyces scabies was ever-present, but not serious. Hollow heart will account for considerable loss, as all the large potatoes are discarded in anticipation of its presence.

Powdery scab (Spongospora subterranea): slight amount found in one bin in Van Buren.

Following are observations made in 28 fields that were found being dug this week:

Sunburn was found to some extent in every field. The worst case of sunburn was a field of Katahdins in Washburn where the severity was about 60%.

Frost damage occurred in 90% of the fields, ranging from a trace to 45%, averaging about 2 to 3%. In over 1/3 of the fields there was only a trace apparent at the present time.

Some late blight was found in 2/3 of the fields examined. Most fields had from a trace to 2 or 3%. Twelve percent was the most recorded for any one field.

Ring rot was found in 14 of the 28 fields. In 7 of the 14 fields it was recorded as a trace, slight amount, or about 1%. The greatest severity found in any one field was 10%.

Other diseases varied so little from their occurrence in storage that it is not necessary to repeat here. Only two cases are worthy of mention. One field of Katahdins in Woodland had about 33% hollow heart, and one field of Green Mountains in Van Buren had an exceptionally bad case of Rhizoctonia solani. This was true for both prevalence and severity. EMERGENCY PLANT DISEASE PREVENTION PROJECT.

OTHER REPORTS ON POTATO DISEASES

POTATO DISEASES IN MARYLAND: Careful observations were made on potato diseases on the Eastern Shore during the first week of October, while making field inspections for seed certification, and in western Maryland while digging experimental plots near Oakland during the week of October 18.

On the Eastern Shore late blight (Phytophthora infestans) was seldom observed in any field. Early blight (Alternaria solani) was general in slight to moderate amounts in most fields. Leafhoppers attacked the

plants early in the season and hopperburn was more severe than usual on the late seed crop.

Leaf roll (virus) was considerably more prevalent on the Eastern Shore this year than usual. One field showed 50% infection, another 33%, and several fields 20%. In many fields there was slightly more than 3% leaf roll. Growers were making an effort to reduce infection by leaf roll or total viruses to 3% by roguing out the diseased plants, to meet the tolerance imposed by Maryland law. Reduction in yield has resulted when growers use home-grown uncertified seed, and so-called "selected" seed from other States.

In experimental plots in western Maryland, late blight was practically absent on all varieties that had been sprayed thoroughly. About 25 to 30% of the tubers from unsprayed plots were infected. Scab (Actinomyces scabies) was very severe on all susceptible varieties in some replicates but not in all. Rhizoctonia solani appeared on many tubers to produce the black scurf that mars the appearance of the tuber. No aerial tubers were observed, and only a few plants showed small underground tubers as a result of this disease. --R. A. Jehle, University of Maryland.

POTATO DISEASES IN SOUTHEASTERN VIRGINIA: A plot of Bliss Triumph potatoes grown from home-grown seed in the Hampton area showed 15% mosaic and 5% leaf roll (virus) in the standing plants. Misses amounted to nearly 25%.

In the Portsmouth, Norfolk, and Eastern Shore area potatoes were late and many fields showed extremely poor stands, both due primarily to dry weather following planting. Mosaic, leaf roll, and spindle tuber were prevalent and causing yield reduction. In one field several plants showed symptoms resembling those of yellow dwarf (virus). Early blight (Alternaria solani) was slight in this area, being severe on only a few plants. Late blight was not found. --C. F. Taylor, Emergency Plant Disease Prevention Project, survey October 11 to 23 in company with S. A. Wingard, Virginia Agricultural Experiment Station; and G. K. Parris, R. P. Porter, and H. W. Ridgway, Virginia Truck Experiment Station.

POTATO SCAB IN AN OHIO TRUCK GROWING AREA: Potatoes on muck soil near Hartville in Stark County were free from scab except in 2 localized areas. It was learned that these 2 areas were spots where much brush and wood was burned when the land was cleared of its native vegetation. It is assumed that the accumulated ashes reduced acidity of the soil and thus rendered it favorable to scab development. --M. R. Harris, Emergency Plant Disease Prevention Project. Report October 18 to 23.

POTATO LATE BLIGHT AND SCAB IN INDIANA: During the week ending October 23 a survey was made chiefly of the diseases occurring on potatoes in the field and in storage in Jasper, Pulaski, Stark, St. Joseph, Elkhart, and Noble Counties in northern Indiana.

The potatoes in 4 fields, of which the foliage was found infected severely with blight (Phytophthora infestans) during the week ending

October 2, were examined again for tuber infection and rot. Between 2 and 4% of the tubers appeared to be infected with P. infestans. There appeared to be only a slight increase in the number of infected tubers during the past 3 weeks.

Potatoes from fields on which little or no late blight developed on the foliage were apparently free from infection with P. infestans.

Dr. C. T. Gregory has reported interesting observations regarding the development of late blight in 3 fields of potatoes on muck soil in Kosciusko County. On August 17, the foliage of an unsprayed and a poorly-sprayed field of potatoes were infected severely with P. infestans, while the foliage of a well-sprayed field apparently was free from infection. On October 12, no tubers from the unsprayed field were found affected with late blight, 1 to 2% of the tubers from the poorly-sprayed field were infected and 8 to 10% of those from the well-sprayed field were infected.

Dr. Gregory mentioned that the sprayed fields matured later than the unsprayed field and that the soil of the well-sprayed field was wetter than that of the other fields.

In many cases the lack of heavy rains during the period of abundant late blight inoculum in the fields probably accounts for the relatively small amount of tuber rot that developed in many of the fields.

Between 15 to 60% (average 67%) of the tubers were scabbed (Actinomyces scabies) and between 5 to 50% (average 16%) were infected moderately to severely. --R. C. Baines, Emergency Plant Disease Prevention Project

STORAGE ROTS OF POTATOES IN MINNESOTA AND NORTH DAKOTA: In general, storage rots were more severe in Minnesota than in North Dakota, agreeing with the earlier findings on the distribution of late blight. At Elk River, one bin of Cobblers was severely injured from late blight, resulting in complete loss of marketable tubers. Late blight rot is present in much of the stored potatoes in the Elk River-Princeton area of Minnesota. Near Moorhead, late blight rot is present in most bins, but loss from late blight has not been heavy except in a few cases. One lot of Red Warbas, amounting to about 25,000 bushels, had not less than 15% blighted tubers. These potatoes were deteriorating rapidly in storage and were being shipped out as fast as possible. No serious loss from rot was seen between Moorhead and East Grand Forks, all houses examined apparently being free from severe breakdown. At Warren, about 75,000 bushels of Triumphs and Ohios in one house were decaying rapidly, the tubers being wet, with soft rot doing serious damage. A similar situation was found at Stephen, where three bins of Triumphs had to be marketed because of the development of soft rot. At other points in Marshall and Kittson counties, potatoes are being stored in good condition.

Little loss from potato storage rots was seen in the Red River Valley in North Dakota. At Walhalla, 2 bins of Triumphs had shrunk from soft rot. While late blight infected tubers were seen in both bins, the soft rot apparently developed from sun-scalded tubers. No breakdown was seen at any other storage house except one at Grand Forks, where Triumphs with ring rot (Corynebacterium sepedonicum) were decaying. Late blight infected tubers are present in small amounts in houses in Eastern North Dakota, but serious decay from this cause is unlikely because of the

generally satisfactory storage conditions.

One farmer near Hillsboro, however, had very poor potatoes in storage on his farm, and was attempting to market them. His Chios had 50 to 60% late blight infection, Cobblers about 1% late blight and not less than 60% spindle tubers (virus), while his Triumphs had 2% late blight and, in addition, ring rot. The Triumphs were decaying rapidly and were unfit for market, while less than half of the Chios and Cobblers were marketable. He had not dusted his fields and had used his own Chio and Cobbler seed. The Triumphs, which he planted last, were grown from common seed that apparently was heavily infected with ring rot. In contrast to these potatoes, the warehouses at Hillsboro did not contain any rot, late blight or other storage troubles not being seen, the potatoes there being in excellent condition. --Ian W. Tervet, Emergency Plant Disease Prevention Project. Week ending October 30.

SOME FUNGI NEWLY REPORTED ON SWEETPOTATO IN CALIFORNIA

Horace L. Barnett

During the week ending October 23 one day was spent in the sweetpotato growing region of Merced County, visited earlier (see preceding issue PDR). It was thought advisable to examine sweetpotatoes in additional fields now being dug. In general the disease situation was similar to that reported for the week ending October 9. An undetermined rot found at that time has now been cultured and identified as charcoal rot (Sclerotium bataticola). This rot was again found on a number of sweetpotatoes but in a different field. The actual damage done by this fungus in the field was slight and its presence in the roots may be mainly secondary. Apparently this represents the first report of Sclerotium bataticola on sweetpotato in California.

Several sweetpotatoes with mottle necrosis were collected from several different fields in Merced County on this second visit. Both the band type and the cheesy type of necrosis were found. Isolations were made from diseased tissues and the fungus obtained appeared to be a Pythium. The species has not yet been determined. It was interesting to note that Sclerotium bataticola was present in several of the sweetpotatoes with mottle necrosis and appears to be a secondary invader following Pythium. Loss due to mottle necrosis was slight. This represents the first report of mottle necrosis in this State.

A fungus isolated from small scabby spots on sweetpotato collected in Merced County on October 5 has been identified as Phoma terrestris. It is not known whether the fungus is an active parasite on sweetpotato or whether it causes any loss. The spots appeared to result from lenticel infection.

EMERGENCY PLANT DISEASE PREVENTION PROJECT. Reports for weeks ending October 23, October 30.

OTHER REPORTS ON DISEASES OF SWEETPOTATO

SWEETPOTATO DISEASES IN SOUTHEASTERN VIRGINIA: Vegetable plantings were surveyed in the Portsmouth, Norfolk, and Eastern Shore area, in company with Dr. S. A. Wingard of the Virginia Experiment Station, and Dr. G. K. Parris, Dr. R. P. Porter, and Dr. H. W. Ridgway of the Virginia Truck Experiment Station. In one sweetpotato field blue stem (Fusarium) had caused moderate loss with Rhizopus nigricans causing a follow-up rot in many roots. Stem infection with Fusarium was severe. Scurf (Monilochaetes infuscans) had affected at least 15% of the plants in one field and was general in other fields. Pox (Actinomyces ipomoeae) was observed occasionally. Leaf spots appeared to be causing little damage. --C. F. Taylor, Emergency Plant Disease Prevention Project. October 11 to 23.

SWEETPOTATO DISEASES IN FIELD AND STORAGE IN LOUISIANA: During the period from October 11 to 16, a small localized sweetpotato growing section in the northeastern part of the State was visited. Soil rot (Actinomyces ipomoeae) was found on 2 farms that have been growing the crop commercially for 12 to 15 years. On one farm the disease was scattered over a 12-acre field in large localized spots and the approximate total loss amounted to 2-1/2 to 3 acres. On the other farm the loss was 3-1/2 to 4 acres localized on one side of the field. Fusarium wilt was found, but only traces in any one field. In one field 2 to 3% of the plants were affected in one terrace while in the remainder of the field only a trace could be found.

At Sunset, during the week ending October 23, sweetpotatoes were being washed prior to shipment. One lot coming from black land was heavily affected by scurf (Monilochaetes infuscans), from 2 to 3% being too badly stained to make the U. S. No. 1 grade. A trace of black rot (Ceratostomella fimbriata) was found. Soil rot lesions were present on from 5 to 10% of the potatoes from one farm, causing a loss of 3% of grade U. S. No. 1.

During the week of October 25 to 30, a survey was made in Caddo, Desoto, Bossier, Claiborne, and Bienville Parishes in northeastern Louisiana. Harvested sweetpotatoes were observed at the various inspection and storage centers in these Parishes. The most prevalent disease found was soft rot caused by Rhizopus. This is probably due to the fact that many of the growers are new in sweetpotato growing and did not handle the roots carefully at digging time, since many showed evidence of bruising. Black rot was found at all places visited. However, the least amount was observed in Caddo Parish. In Desoto Parish 11 roots showing black rot were found in a crate of culled sweetpotatoes coming from 110 crates. In another lot of 12 crates 2 black-rot infected roots were found. At one storage house in Bienville Parish 5 sweetpotatoes showing black rot were found in 1 crate that had been stored for seed; this was the largest amount of black rot found in any one crate. The inspector stated that when the farmers first started to bring sweetpotatoes to the market almost every load showed some black rot. A trace of Diplodia (tubericola) rot and pox or soil rot lesions were found on sweetpotatoes at all points visited. Growth cracks and grub injury were

observed in most lots examined. --L. H. Person, Emergency Plant Disease Prevention Project.

SWEETPOTATO DISEASE SURVEY IN TEXAS: On October 25 I went to Tyler to visit fields, grading sheds, and storage houses during the main harvest of sweetpotatoes. Grading sheds and storage houses were visited at Tyler and Lindale in Smith County, Gilmer in Upshur County, and Pittsburg in Camp County. Fields in which sweetpotatoes were being dug were visited near each of these towns and also near Mt. Pleasant in Titus County. Quantities of sweetpotatoes were also seen at a canning plant at Lindale and at another in Clarksville, Red River County.

The most prevalent disease was soil rot (Actinomyces ipomoeae) which was seen in all lots of sweetpotatoes examined. In certain small lots of ungraded sweetpotatoes the disease occurred on as high as 20% of the roots. This was much above the average, however, which was 3 to 5%. A dry growing season that closed with rains just before digging time caused a high occurrence of growth cracks in all the localities visited. Rhizopus nigricans and other molds were beginning to appear on some specimens of this type in nearly every lot of stored roots examined. Notwithstanding the serious effort made by graders to eliminate roots with growth cracks, some of this type were finding their way into storage and may later serve as sources of spread of soft rots.

A single plant showing symptoms of stem rot (Fusarium bulbigenum var. batatas) was found in a field near Gilmer. Otherwise no evidence of the disease was noted.

Black rot (Ceratostomella fimbriata) was not found except in one field near Gilmer, which had only a trace, and in a grading shed at Lindale.

In the latter location about a half dozen roots showing black rot were found among the culls. This represented a very small fraction of one percent of the roots being handled at that shed. --G. M. Watkins, Emergency Plant Disease Prevention Project.

CELERY DISEASES IN CALIFORNIA

Horace L. Barnett

During the week ending October 30 a trip was made to the Delta Region southeast of Isleton. During the trip, which was made in the company of Dr. M. W. Gardner, Dr. H. H. P. Severin and Dr. J. B. Kendrick, a survey was made of the celery diseases in this large celery-growing district. Both the green Utah and the Golden varieties were being harvested and shipped at this time. Many fields totaling several hundred acres were visited.

Most of the fields visited showed some aster yellows (virus), the amount varying from a trace to approximately 20% in some spots. Infection of about 10% in parts of some fields was not uncommon. In one field of Golden celery a very heavy infection was found, especially near the drainage ditch where many weeds were growing. This same field was also heavily infected with calico (virus) and with western celery mosaic. As

a result of this combination the crop here was almost a total loss. Aster yellows was present in most fields of green Utah variety but here it was represented by only scattered plants. The percentage of infection was much less than in the Golden.

Calico (virus) infection in the Golden ranged from a small percentage to well over 50% in one part of the field mentioned above. The actual damage due to this disease was slight. Calico was not observed in any field of the green Utah.

Western celery mosaic (virus) was found in most fields, the percentage being higher in the Golden varieties than in the green. Some fields showed little of the disease while in others it was common and already causing loss. From our observations there is reason to believe that the disease may cause considerable damage by the end of the season.

Fusarium yellows (Fusarium orthoceras var. apii) was severe in only one field visited. Here the stand had been reduced by approximately 1/3, presumably by Fusarium. The amount of disease in this area has been greatly reduced in recent years by the growing of resistant varieties.

Only a trace of cottony rot (Sclerotinia sclerotiorum) was found in the fields visited in this area. No actual loss was evident.

Blackheart (probably caused by irregular moisture supply) was found in several fields but the loss was apparently small.

Rootknot nematodes (Heterodera marioni) were found in one field. The damage could not be estimated beacause they occurred in an area of approximately 2 acres where the celery had been partially drowned out by standing irrigation water earlier in the season.

Red spider damage was severe and general in this area and the loss to some growers will be high in spite of attempted control measures.

EMERGENCY PLANT DISEASE PREVENTION PROJECT

VEGETABLE DISEASES IN THE TRUCK CROP REGION OF SOUTHEASTERN VIRGINIA

C. F. Taylor

From October 11 to 23 a survey was made in southeastern Virginia in company with S. A. Wingard of the Virginia Experiment Station and G. K. Parris, R. P. Porter, and H. W. Ridgway, of the Virginia Truck Experiment Station.

Hampton Area. -- In one tomato field, previously reported (PDR 27 (18): 410), a mixture apparently of cucumber mosaic and common tobacco mosaic had spread until the majority of the plants showed symptoms of both diseases. Streak, caused by a combination of latent potato virus and tobacco mosaic virus, was also present. Nematodes [presumably Heterodera marioni] were abundant on tomatoes in this field.

Fifty percent of the eggplants on the same farm showed slight wilting and vascular discoloration, due to Fusarium, and nearly 50% of the fruit showed Phomopsis vexans, the growers reporting a loss of about 25% for the season.

A few pepper plants nearby showed wilt due to Fusarium.

Portsmouth, Norfolk, and Eastern Shore Area. -- Spinach stands were generally good although the plants were small. No downy mildew was found.

Kale fields were mostly uneven in stand, caused by dry weather, followed by transplanting; but a few early fields showed excellent growth.

Downy mildew (Peronospora parasitica) was observed on most of the lower and older leaves of broccoli in 2 fields. Mosaic was present as a trace in one field.

Downy mildew was also found on cabbage in several fields, but was not causing measurable loss. Yellows (Fusarium conglutinans) had affected at least 30% of the plants in one early-planted field of cabbage. Alternaria leaf spot [species not designated] was very general in the same field.

In one field of peppers about 5% of the plants showed mosaic symptoms, counts ranging from 2 to 20%. Mosaic was observed in other fields. In one field several plants had been killed, possibly by Pseudomonas solanacearum.

Parsley in one field suffered 10% loss due to nematodes [presumably H. marioni].

Both downy and powdery mildews (Pseudoperonospora cubensis, Erysiphe cichoracearum) were observed on squash, but they were apparently causing no loss.

A few fields of tomatoes in late stages of harvest were seen and in some mosaic approached 100%. Early blight due to Alternaria solani was prevalent. In one field considerable necrosis of the terminal branches was observed; the cause was uncertain since the plants were old, heavily infested with aphids, moderately infected by early blight, and had been damaged by a wind storm, and the condition was uniform throughout the field.

Lima bean yeast spot (Nematospora coryli) was found in one home planting of pole lima beans.

Soybean bacterial pustule (Xanthomonas phaseoli var. sojense) was prevalent generally, but causing little damage.

Asparagus stem spotting caused by Cercospora asparagi was abundant on 70% of the plants in one planting.

Diseases of potatoes, beans, and sweetpotatoes are reported separately.

EMERGENCY PLANT DISEASE PREVENTION PROJECT.

WET WEATHER INJURY TO TRUCK CROPS IN FLORIDA

Arthur S. Rhoads

A trip was made through the central part of the State, September 27 to October 7, with special reference to parts of Lake, Seminole, Volusia, and Orange Counties in central eastern Florida.

Growers were just getting under way with celery and other truck crops and plants were either still in the seedbeds or being set out in the field as conditions permitted. In the Sanford area (Seminole County) operations have been greatly delayed by excessive rainfall, with considerable loss of plants, both in the seedbeds and in the fields. On September 17 a rainfall of 3 inches occurred in about 45 minutes, accompanied by a strong wind from the northwest. Many of the seedbeds were completely submerged for a while before the excess water could

drain off and considerable loss of plants occurred, especially along the sides and west ends of the beds. An additional rainfall of 2 inches occurred the day after this deluge and 0.82 inch on the following day. Fortunately the weather remained cloudy and some growers were able to work dirt around the plants that had been partially washed out. The severity of plant losses varied at different points but was not so great as was first anticipated owing to the continued cloudy weather. In some cases the more recently planted beds were completely washed out and had to be replanted. Shortly after the visit to Sanford it was reported (October 8) that fields prepared for planting of celery, escarole and cabbage were flooded and that no planting could be done until the ground dried out sufficiently to be reworked.

In the Winter Garden section of Orange County 4 of the largest growers of truck crops were visited. Here also the main trouble had been too wet conditions in both the seedbeds and the fields. Unusually heavy rainfall resulted in an average of about 50% loss in the seedbeds and varying degrees of losses to plantings already made in the field. Downy mildew (Peronospora parasitica) was reported to have been bad in cabbage seedbeds in former years but this disease has been held well in check the last 2 years by treatment of the seed with Semesan and Spergon, followed by dusting the young plants with copper-lime and Cuprocide.

One grower near Winter Garden stated that the period of nightly rains from September 11 to 22 had so damaged his plantings that he had plowed up 5 acres of cabbage and 5 acres of peppers on account of loss from root injury, and had interplanted other damaged areas and was trying to bring them out.

Another grower at Winter Garden had sustained little loss of plants set out in the field except in one local area where deficient drainage was due to a defective tile line. This grower felt that he was handicapped by inability to secure pyrethrum and other insecticides and was alarmed over the shortage of crates and inability to get orders for them filled.

A large grower near Minorville, who had 25 acres set to peppers reported that between 8 and 9 acres had been drowned out and the balance badly damaged by prolonged rainfall over a period of 2 weeks. The worst-affected area had been plowed out for replanting after using the best plants to reset the balance of the area. This planting was visited 2 weeks after the cessation of the rainfall and the injured plants were said to have shown considerable improvement. It looked as though the majority would pull through but the injury gave a great setback to an early planting that was very promising at the start. This grower stated that he had experienced little trouble with downy mildew in his cabbage seedbeds.

Another grower near Ocoee, who had 20 acres of peppers set, reported no trouble from diseases but stated that the heavy rainfall had put him behind in his activities and had made a lot of extra work in hoeing weeds and delayed him in getting out his escarole.

Subsequent reports indicate that weather conditions in Florida during the first half of October were generally unfavorable for farm operations in the truck crop sections. Heavy rains on the East Coast were reported to have halted all farming operations, with some loss in early plantings.

The fall crops in the Palmetto-Ruskin section also have been seriously retarded by wet weather and, except for a small acreage on high pine land, the early plantings in Dade County have been lost.
EMERGENCY PLANT DISEASE PREVENTION PROJECT

VEGETABLE DISEASES IN AN OHIO TRUCK CROP AREA

M. R. Harris

An inspection was made of a vegetable growing area on muck soil near Hartville in Stark County. Crops that were still growing or in storage were potatoes (reported separately), carrots, endive, onions, parsnips, celery, lettuce, and spinach.

Carrots were severely attacked by blight (Alternaria carotae) and the grower said he had considerable loss due to small and poorly shaped carrots. No spraying was done due to lack of labor.

A 5-acre field of endive was a total loss. The plants grew well until large enough to tie up. Then they became yellow, brittle in texture, and wilted. When roots were examined many showed a general discoloration together with cavities in the root pith. No definite cause of the trouble has been determined but the symptoms indicate a soil deficiency such as a lack of boron. Tests are to be made of the soil and the grower expects to try adding some minerals.

Onions, both bunching and dry, were almost free from pink root (Phoma terrestris) and other diseases, but were severely damaged by thrips.

Parsnips were quite free from disease. The grower follows the practice of mowing off the parsnip tops late in the summer thus forcing the plant to grow a new and smaller top. This practice tends to eliminate damage due to blight (Ramularia pastinaceae).

Celery was affected by late blight (Septoria apii). No spraying had been done and infection apparently took place late in the season. There was a 10% loss.

Lettuce was largely harvested but remnants of the crop in the field indicated a possible 5% loss due to aster yellow virus.
EMERGENCY PLANT DISEASE PREVENTION PROJECT. October 18 to 23.

CONDITION OF CITRUS GROVES IN FLORIDA

Arthur S. Rhoads

A trip was made through the central part of the State from September 27 to October 7, with special reference to parts of Lake, Seminole, Volusia, and Orange Counties in central eastern Florida.

Citrus groves in Lake and Orange Counties in general were in unusually fine condition. Groves in the De Land section of Volusia County had been severely injured by freezes in January and November, 1940, that killed a considerable part of the bearing wood. Some of the injured groves in this section have not been cared for very well since that time, but those that have been taken care of are in good condition and bearing good crops.

Groves in central Brevard County in general have recovered from the effects of a prolonged drought during the spring and summer, and in a few instances groves in low situations have been adversely affected by waterlogging of the soil following heavy rainfall in late summer. The groves in this county appear to be in the usual condition; a number are still experiencing a considerable loss of trees from wilt or blight, a physiogenic trouble occasioned by either deficits or excesses of soil moisture, or both. The fruit in central Brevard County in general is unusually small in size for this season of the year owing to the fact that blooming was largely retarded until the first of April by drought. As a result, the fruit will be about a month later than usual in maturing. A number of the larger growers in the Cocoa section have either dug up or topworked their Florida Common and Duncan grapefruit trees since there has been a greatly reduced demand of late for seedy varieties other than for canning and the prices paid for fruit by canneries have been very low.

Following extensive programs using dolomitic limestone to increase pH reaction of acid soils, and the secondary plant food elements in fertilizers and as sprays, groves in Lake and Orange Counties in particular present a better appearance than ever before. Many groves that formerly were backward and not especially productive, with the trees in a weakened or declining condition from lack of essential plant food elements, have made a remarkable improvement. Gummosis has cleared up to a large extent in a number of groves where it was troublesome in former years, following the practice of modern methods of fertilizing.

The situation with respect to scab (Elsinoë fawcetti) and melanose (Diplodia, Phomopsis) appears about as usual in most sections of the citrus area visited. In the De Land section, however, melanose was reported to be worse this year owing to the cold February. These diseases, which formerly were regarded as serious factors in reducing fruit grade and marketability, are now considered relatively unimportant from an economic standpoint, owing to the use of such a large proportion of the fruit crop for canning. Melanose is still an important factor in citrus fruit production, however, from the standpoint of the Phomopsis type of stem-end rot.

In the De Land section foot rot (Phytophthora parasitica) was reported to be troublesome on seedling orange trees. Psorosis (virus) also was reported to be troublesome but in the groves visited only a single case was found on an old orange tree. However, several instances of foot rot were observed in 2 adjoining old groves on grapefruit stock.

In one of the above groves Ganoderma tornata was found fruiting at the base of a single orange tree on grapefruit stock, at a point below where a trunk division had been cut off and a cavity formed. This and other species of Ganoderma occasionally cause a root and butt rot of citrus and other trees in Florida.

Botryodiplodia diplocarpon was found to be of general occurrence on dying branches of Tahiti lime trees in a rather neglected grove between Lotus and Tropic on Merritt Island. It causes a bluish-black discoloration of the wood similar to that due to Physalospora rhodina (Diplodia natalensis), but appears to be essentially secondary on branches weakened or dying from various causes.

Stylar-end rot of Tahiti limes, considered to be a physiological

breakdown of maturing fruit, also occurred to some extent on the more mature fruit on a number of trees in the same grove.

The Cassytha vine (Cassytha filiformis L.) was found forming a dense mat through the top of a Tahiti lime tree in this neglected grove.

EMERGENCY PLANT DISEASE PREVENTION PROJECT

BRIEF NOTES ON PLANT DISEASES AND A CORRECTION

FURTHER NOTE ON THE OCCURRENCE OF CLITOCYBE MUSHROOM ROOT ROT IN FLORIDA: Species of beefwood or Australian pine (Casuarina spp.) trees extensively planted in many sections of central and southern Florida for windbreaks and ornamental trees, have proved particularly susceptible to mushroom root rot (Clitocybe tabescens). A total of 103 trees recently dead or dying from this disease was observed at a number of points in central Florida as follows: C. cunninghamiana, 2 trees at Orlavista and 2 at Maitland (Orange County); C. lepidophloia, 1 at Ocoee and 2 at Plymouth (Orange County), 14 at Bonaventure, 6 at Rockledge, 8 at Cocoa, and 51 at various points on Merritt Island (Brevard County); and C. equisetifolia, 17 at various points on southern Merritt Island (Brevard County). The freeze of January, 1940, killed virtually all the remaining trees of the latter species planted in the interior of the State.

The occurrence of Clitocybe root rot was observed also on small specimens of Acacia sp. (P. I. No. 106546) and silverleaf cotoneaster (Cotoneaster pannosa) on the Experiment Station grounds at Gainesville, and on a large sweet gum (Liquidambar styraciflua) in a residential property bordering on woodland at Gainesville.

In the case of the occurrence of Clitocybe root rot previously reported on an unidentified Ternstroemia-like shrub at Monticello, the identity of the host as given by the nurseryman being questionable, it has been determined on unquestioned authority to be Chinese Stranvaesia (Stranvaesia davidiana Decne.). Five bushes in a row of a few remaining plants in a commercial nursery were dead or dying from the disease.

--Arthur S. Rhoads, Emergency Plant Disease Prevention Project. Report for October.

BEAN DISEASES IN SOUTHEASTERN VIRGINIA: Beans in the Portsmouth, Norfolk, and Eastern Shore area, visited in company with S. A. Wingard of the Virginia Experiment Station and G. K. Parris, R. P. Porter, and H. W. Ridgway of the Virginia Truck Experiment Station, October 11 to 23, were late and in many cases in early stages of harvest. Mosaic was frequently seen, affecting as high as 5% of the plants in some fields. Mildew (Erysiphe polygoni) was present in many fields but apparently causing little loss. In one 6-acre field 100% of the leaves and some pods were severely attacked. However, this was an early field and it appeared that most of the crop had been harvested before mildew became severe so that the loss probably was less than 10%. Rust (Uromyces phaseoli var. typica) was present as a trace in several fields. What appeared to be anthracnose (Colletotrichum lindemuthianum) leaf lesions were observed on a few plants. Bacterial blight [type not designated]

was observed in a few fields. Nematodes [presumably Heterodera marioni] were severe in certain fields, in one case being largely responsible for the yield difference of 50 bushels as compared to 300 bushels per acre in 2 fields on one farm. --C. F. Taylor, Emergency Plant Disease Prevention Project.

STORAGE DISEASES OF ONIONS IN NORTHERN INDIANA: Onions in a large storage house near Medaryville were examined as they passed over a grader. Between 3 and 4% were affected with soft rot (Erwinia carotovora). Most of the rot had developed from the neck of the onion. An occasional onion affected with small sclerotial neck rot (Botrytis squamosa) was found. --R. C. Baines, Emergency Plant Disease Prevention Project. Week ending October 23.

A CORRECTION: HELMINTHOSPORIUM ON CORN IN WEST VIRGINIA: On page 521 of the October 15 issue, the second sentence in the second paragraph of the report for Delaware, Maryland, Virginia, and West Virginia should read "In one case, in Nicholas County, it affected the variety Ohio 20 where neighboring fields of Ohio W 17 were free", instead of Ohio W17 and Ohio 17, respectively, for the underlined names.